VOL. XXX.
No. 9.

DECEMBER, 1906.

$3.00 per Annum.
Single Copies, 25 Cents.

AMERICAN VETERINARY REVIEW.

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CONTENTS.

PAGE

Editorial.—European Chronicles.....1007
"The Value to the Nation of Veterinary Schools 1020
San Francisco Veterinarians Prosperous.....1021
Inspection of Food for the Army 1022

Original Articles.—Inspection for the U. S. Army. By D. Arthur Hughes 1023
The Value to the Nation of Veterinary Schools. By Leonard Pearson.1050
Report on Surgery. By C. C. Lyford.1059
An Outbreak of Rinderpest in the Philippine Islands. By R. H. McMullin.....1063
Modern Veterinary Methods. By W. J. Taylor.....1065
Practical Application of Bovovaccine.....1068

Reports of Cases.—Chondroma of Median Septum. By J. W. Haxby.1071
Azoturia (?) with a Peculiar History. By G. W. Stanbridge. 1072

PAGE

Good Results from Passiflora Incarnata in the Treatment of Tetanus. By M. R. Steffen.....1073
Two Canine Cases: Paralysis from Constipation—Intestinal Obstruction from a Ball of Hair. By A. E. Merry 1073
Another Bovine Monstrosity.....1074
English Review.....1075
German Review. 1079
Army Veterinary Department.....1084
Bibliography.....1086
Correspondence.....1087
Society Meetings.....1092
Minnesota State Veterinary Medical Association.—Veterinary Medical Association of New York County.—American Veterinary Medical Association.—New York State Veterinary Medical Society.
News and Items 1120
Veterinary Medical Association Meetings. 1127
Publishers' Department. 1128

The AMERICAN VETERINARY REVIEW is issued on the 1st of each month. *Manuscript and copy for insertion should be received by the 20th of the preceding month* to insure insertion in the next month's number. *Volume commences* with April number.

Communications relating to business (subscriptions, advertisements, and remittances) should be addressed to

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NEW YORK CITY.

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710 East Second Street, Boro. of Brooklyn,
NEW YORK CITY.

European Exchanges, books for review and personal letters should be addressed to
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AMERICAN VETERINARY REVIEW.

DECEMBER, 1906.

EDITORIAL.

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EUROPEAN CHRONICLES.

PARIS, FRANCE, Oct. 15, 1906.

IS PLEURO-PNEUMONIA CONTAGIOUS TO OTHER ANIMALS THAN CATTLE?—In one of my last "Chronicles" I related the experiments of Riegler and Ciuca, in relation to the transmission of glanders to bovines, thus doing away, so to speak, with the idea that bovines were refractory to the infection of the glanderous microbe.

To-day I will record another blow to an admitted opinion upon another contagious disease. But this time it will be on a cattle disease, namely, pleuro-pneumonia, and on its transmission to animals of the ovine and caprine species.

Pleuro-pneumonia of large ruminants has always been considered as a contagious disease, exclusively inoculable to bovines, and even this impossibility to transmit it to other species of animals has been the means to confirm its diagnosis. Indeed, experimental inoculation of the serosity taken from an hepatized lung has always been negative in all animals except bovines. Goats, sheep, dogs, pigs, fowls and even men, said Willems in 1850, have been inoculated without any results whatever. When later, a virulent and pure lymph was obtained from puncture in the subcutaneous œdema of a calf, according to the method of Pasteur, massive injections were frequently made under the skin, in the pleura and the peritoneum of various animals, always without success. Sheep and goats remained refractory to the infection. In 1898, Nocard and Roux, with the

collaboration of Borrel, Salimbeni and Dujardin Baumetz, discovered the pathogenous agent of pleuro-pneumonia, and of course of its culture. These discoveries made the diagnosis much easier in doing away with all need of controlling inoculation.

For the cultures, the serum of bovines was always employed, and of course all attempts made again to inoculate other animal but cattle proved as before unsuccessful. The results were similar—whether when the serosity from a swelling or bouillon of culture was used, they remained always negative.

Continuing his experiments on the subject, Dr. Dujardin Baumetz has published recently in the *Annals de Pasteur Institut* the result he has obtained. Doing away with culture on beef serum, he resorted to cultures made on ovine serum, and instead of a bouillon-serum-beef, he employed a bouillon-serum-sheep, using for its preparation the strong virus, taken from a typical case of pleuro-pneumonia.

This serum was inoculated to a sheep in massive doses. The results were: Elevation of temperature, formation of a hard characteristic swelling, from which serosity was extracted and inoculated to cattle and gave rise to the development of the swelling of the disease. A few days later there was apparition of lameness in one leg, acute arthritis, which lasted several days. All these manifestations are similar to those which have been observed in calves.

A second sheep was again inoculated with a smaller dose. The first had 100 c.c., the second only 10 c.c. Swelling and arthritis were also manifested after the regular time. The blood of this animal gave cultures of pleuro-pneumonia. Some of this culture inoculated to a third sheep gave again rise to similar manifestations. Consequently: here are three animals, ruminants of a species refractory to pleuro-pneumonia, which after inoculation of bovine virus cultivated on bouillon-serum-sheep, have presented a swelling entirely analogous to that of diseased pleuro-pneumonic cattle. And the proofs of which are given, first by the characters presented by the microbe, which

were those of the microbe of pleuro-pneumonia, but again by inoculation; serosity taken from the swelling of the third animal of experiment was cultivated on bouillon-serum-beef and after several cultures inoculated (2 c.c.) to a cow. After an incubation of 12 days this cow presented a characteristic swelling, which proved fatal, the injection having been made in the forbidden region, behind the shoulder. Some serosity from the swelling of this cow injected to one sheep, gave of course rise to no result.

A simple change in the bouillon of culture, substituting a serum to another has been sufficient to promote in a refractory species the experimental swelling of pleuro-pneumonia.

* * *

Will the serum of other animal species have identical properties?

The affirmative can be given as far as the serum of horses goes, which on account of being easily procured, has been used by the Doctor. A lamb receives 5 c.c. of a culture of pleuro-pneumonia on bouillon-serum-horse. After a certain time, it has a swelling, it has arthritis also.

Experiments made on goats have given similar results also, whether the inoculations were made with cultures of serum of goats, of sheep, or of horse; in all the pleuro-pneumonic swelling has been the rule.

From all these experiments, it seems as if one is authorized to believe, that the animals above mentioned are not the only ruminant individuals in which the resistance to pleuro-pneumonia can be overcome, and it is probable that by searching in others a similar condition might be found.

The results of these inoculations, with different serums, as far as the immunity granted, remains yet to be studied. Also the results that may be obtained with serum of horse, in which massive doses of virus have been injected. Those will be made known later.

* * *

Indexed. THE TREATMENT OF PURPURA HÆMORRHAGICA.—In that

excellent contemporary, the *Revue Générale*, where one can always find valuable information, there has been published an interesting review of the "Etiology and Treatment of Anasarca in the Horse," by Mr. Drouin, where the following is found:

The non-contagious entity, not inoculable, known as anasarca in France, is designated under various names (petechial fever, morbus maculosus, purpura hæmorrhagica, disease of Werthoff) in other countries. There are different opinions on the causes of this serious affection. For some it is a primitive disease; for others it is always secondary. And, finally, there are a few who consider it sometimes as primitive and again as secondary. The theory of primitive origin is no longer accepted, with the numerous examples showing that it generally succeeds other preëxisting diseases, or is grafted on them. To-day, if clinically it is always considered as consecutive to an infectious disease, microbiologists see in it a disease, the function of a microbe or of a microbian association. And, in fact, in the middle of the swellings of anasarca, numerous microbes are found, but none is specific and able to reproduce the disease, by itself alone. There is one, the streptococcus, whose action has seemed preëminent, because it was the one which was most frequently observed; but Lignières has proved that it needed, in order to give rise to the manifestations of anasarca, to find a soil already prepared by another microbian infection, and among these the pasteurellic infection is without doubt the most efficacious.

* * *

Many times the conclusions of Lignières have been sanctioned by clinical facts. At the present time, the action of the streptococcic infection of human type or of strangles origin, complicating a preëxisting microbian affection, is clearly established, and it explains well the etiology of anasarca, which before remained rather obscure. This constatation has been followed by very positive practical results in relation to the treatment of the disease. The sero-therapeutic method, inaugurated in 1895, consisting in the injection of monovalent anti-

streptococcic serum under the skin, gave in 1898 82 per cent. of recoveries, while with the old treatments only 23 per cent. is obtained.

The failure of the monovalent serum against some forms of anasarca, and especially against those following strangles, proved that it was necessary to have a polyvalent serum—that is, one which would be efficacious against the streptococcus of man and also that of the horse, so much more that quite a number of diseases of horses are complicated with strangles streptococcic infection.

And then, from 1903, the polyvalent serum of Pasteur's Institute gave a greater number of recoveries (85 per cent.) in France, at least.

* * *

In foreign countries, the therapy of anasarca in late years has consisted, according to the method of Dieckerhoff, in venous injections of collargol in aqueous solution 1 : 50, the dose varying between 50 centig. and one gramme. It had only a short success and lowered the mortality very little. Yet some very encouraging results have lately been obtained in France —eight recoveries out of nine cases.

Old methods of treatment are more and more laid aside, as experience has shown that in anasarca the forced administration of drugs is dangerous and often more injurious than useful. Likewise with external revulsive applications. Scarifications, red iron punctures, and in general any armed interference on the skin creates doors of entrance, too widely open, to all secondary infections. They must be avoided.

To resume, in anasarca, outside of the direct therapy of threatening symptoms, the best mode of treatment consists in injecting polyvalent antistreptococcic serum, as early in the disease as possible. Some forms, especially serious, such as with mixed infections, resist to this mode of treatment, but no other has given better results. In all cases the recent methods have the advantage of protecting the diseased animals from all the complicated and massive pharmaceutic compounds that were

given to them and whose good effects are less demonstrated than their danger.

* * *

THE RELATIONS BETWEEN HUMAN AND BOVINE TUBERCULOSIS have been, for Mrs. Doctor L. Rabinowitsch, the subject of a communication in the *Berliner Klinische Wochenschrift*, which has been reviewed in the *Revue Générale* as follows:

"The frequency of primitive tuberculosis of the intestine, according to statistics, varies very much. While Wagener finds 16 per cent. among the children affected in a Berlin hospital, in a similar centre Orth, in the same period, finds only 1.5 per cent. The following year, when Edens finds 35.5 per cent. of primitive intestinal tuberculosis, Orth gives one statistic of only 8 per cent. Such great differences, in a similar centre, can evidently be due only to the difficulty with which tuberculosis can be classified as primitive. And, as it results from a discussion which took place between Orth and Edens before the Medical Society of Berlin, intestinal tuberculosis is not in an absolute manner due to the infection of man by bovine tuberculosis, as a food soiled with bovine or even human bacilli may not give rise to any intestinal lesion. And, besides, it is well established that the tuberculous bacillus may rapidly pass through an intestinal wall which has no lesion whatever.

"The causes of the frequency of the infection of man by bovine tuberculosis can be determined only after having tried to differentiate the bacilli of bovine from those of man.

"The morphological characters are neither sufficient nor constant to allow that differentiation. The bovine bacillus grows with more difficulty than the human when on artificial media, and especially in the first generations. The nature of the media seems to influence the growth and perhaps some indications might be derived from this. Inoculation with large doses of tuberculous matter or of pure cultures gives the same results. Tuberculosis of bovine origin seems, however, to show itself more virulent for rabbits than tuberculosis of human origin.

"With these few characters, Dr. Rabinowitsch has succeeded in differentiating, by the following manner, twenty tuberculous bacilli from man in two cases, one of primitive intestinal tuberculosis, the other of alimentary tuberculosis, the bacilli behaved as bovine bacilli; in six other cases, the bacilli, a little different from the human type, but yet not like the bovine, came twice from primitive intestinal tuberculosis, once from alimentary tuberculosis, and three times from miliary tuberculosis. In one case, there was found a bacillus which had all the characters of the aviary bacillus and which was virulent to fowl, especially by ingestion. Finally, in the eleven other cases, there was bacilli of perfectly characteristic human type.

"These researches show that it is possible to extract from the tuberculous matters of man bacilli having all the characters of the bacilli of bovine origin. Those results answer positively the question of the possibility of tuberculous infection of man by bovine tuberculosis. This possible mode of infection is generally admitted and all authors acknowledge the danger of alimentary products of animal origin containing tuberculous bacilli.

* * *

"Those who have denied the danger of bovine tuberculosis for children have taken for their cause the rarity of primitive intestinal tuberculosis and the frequency of lesions of the respiratory apparatus and of its annexes in children. Rabinowitsch objects to this, in recalling the facts which show the passage of the tuberculous bacillus through sound intestinal wall, as has been done by many, and the more interesting experiments which have lately established in an indisputable manner the pathogeny of tuberculosis. And in the clinical records it is shown that physicians have accepted the fact of the possibility of a tuberculous infection of alimentary origin without intestinal lesions. The proof of the possible infection of man is furnished by the experiments of Nocard, who succeeded in infecting monkeys more severely with bovine than with human

bacilli, and also by those of von Dungern, who infected anthropoid monkeys with bovine bacilli.

"The conclusions are: that the possibility of the infection of man by bovine tuberculosis is demonstrated, without it being possible to fix exactly the extent of the danger; and that the fight against bovine tuberculosis must be kept up, not only in the interest of animal reproduction, but also as a protective measure in behalf of public health."

* * *

NEW METHOD OF VACCINATION AGAINST TUBERCULOSIS.—The readers of the REVIEW have been made acquainted with the experiments carried out here and elsewhere, and which have demonstrated that the infection of tuberculosis of the lungs is not ordinarily due, as was generally supposed and believed up to this day, to the inhalation of infecting dusts, but that it results most often from the absorption of tuberculous bacilli through the digestive canal. From this to think that it might be possible to vaccinate animals susceptible to tuberculosis against natural infection by the digestive tract, in giving them when young modified bacilli attenuated or deprived of all virulency, there was but a short step, and it was soon made!

Calmette and Guerin gave bacilli of human origin to young bovines, and when they stopped reacting to tuberculin, gave them 5 centigrammes of fresh bovine tuberculosis. This was not followed by any reaction to tuberculin, while one control animal had a reaction of 1.9°. This method may be simpler than Behring's, but it yet has the inconvenience of requiring the use of bacilli virulent to man.

Other experiments having demonstrated that dead tuberculous bacilli pass through the intestinal walls as well as the living do, and are found in lymphatic glands, these experimenters tried a similar experiment with dead bacilli and with bacilli whose virulency had been attenuated, afterwards giving fresh bovine tuberculosis surely virulent for witnesses. The results were the same and the conclusions derived were that young calves could be vaccinated by the simple absorption through

the intestine of bacilli modified in their virulency by heat, and that this mode of vaccination presented no danger whatsoever. It remains to multiply the experiments upon a larger number of animals, sufficiently numerous to justify the application of the discovery to the general vaccination of all young cattle and to the prophylaxy of tuberculosis.

Similar results seem to have been obtained by others, and among them I may mention Dr. Roux and also Prof. Vallée, without omitting Director Arloing, who affirms that the digestive channel is offering itself to give an active immunization to all young ruminating animals with human or with bovine bacilli properly modified, with even a wide latitude in the selection of the bacilli.

Indexed.

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CURABILITY OF TUBERCULOSIS.—If the prophylaxy of tuberculosis occupies the attention of many, there is also a class of investigators who are looking in another direction—that of its curability. The results obtained by Dr. Guillere, which I related some time ago, are known to our readers. An experiment, in the same direction, has been brought to light by Drs. Lannelongue, Achard and Gaillard in a communication made before the Académie des Sciences. They have been for years trying to extract an efficacious antitoxin from bacilli. The one that they have obtained they tried in pulmonary tuberculosis of guinea-pigs, which have great receptivity for the human bacillus and react about as man does against tuberculous infection. They say: "It is just to believe that, if a guinea-pig can be cured of an attack of experimental tuberculosis, man may also, just as he may be protected from the disease, if guinea-pigs can be by a discovered vaccine?"

Guinea-pigs were inoculated in the lungs with the same dose of virus taken from a culture: some were kept as witnesses, the others were treated either with normal serum of a donkey or with serum presumed antituberculous. These treated with this last received the inoculation, either as preventive or as curative. After one year, the mortality was 90 per cent. among

the witnesses, 87 per cent. in the animals treated with normal serum, and 40 per cent. in those that had received the antituberculous serum.

It is evident that the serum has shown itself efficacious, but the preventive treatment with the toxin and dead bacilli has been rather injurious. In all these experiments, while the generalized lesions were large in the witnesses, the animals that had been treated showed only lesions limited to the thoracic organs.

Whether serum of donkey or of another animal, the question remains still open!

* * *

THE USE OF HORSE MEAT FOR FOOD.—In perusing lately a sanitary report on meat inspection, I came across some facts relating to hyppophagy that are not without historical interest.

The use of horse meat has increased considerably in all countries, thus showing the success of the propaganda made a little everywhere to overcome the objections that most people have against this food. It was with this intention that the "Tierschutzverein" was created in Germany. In England and in Italy similar committees exist. In Austria the use of horse meat is so common and so general that there is no longer need of a propaganda. It is true that, contrary to what may be believed, Austria consumes, generally speaking, more meat than any other nation: the annual average consumption by each inhabitant is, indeed, 111 kilog. 600 grams, against 54 kilog. 400 grams in the United States; 47 kilog. 600 grams in England, 39 kilog. 500 grams in Sweden and Norway, 33 kilog. 500 grams in France, 31 kilog. 600 grams in Germany, 22 kilog. 200 grams in Spain, and 10 kilog. 400 grams in Italy.

In olden times, among primary people, the use of horse meat was constant, and Germans principally eat the meat of the horses that they sacrificed to their gods. It was about the eighth century, after Gregory the Third, that people stopped eating horse meat—that is, among Christians—because it was forbidden by the Pope. In China the use of that meat has

existed for centuries. The first European people, in modern times, that began the use of horse meat were the Danish, which resorted to hyppophagy in 1807, when Napoleon invaded that country. It is also due to him that in 1815 the Germans were obliged to resort to it, on account of great famines that existed in Germany after the long wars of that time. In Prussia, the first horse butchery was regularly opened in 1847. In France it is only since 1870 that the use of horse meat has become generalized.

* * *

BIBLIOGRAPHY.—The Bulletin of the Agricultural Experiment Station of the Louisiana State College, with the report of Dr. W. H. Dalrymple, M. R. C. V. S., on the "Available Stock Foods," and where the advantages of molasses are masterfully brought out; some pamphlets from the Bureau of Animal Industry, on "How to Get Rid of Cattle Ticks" and on "Actinomycosis"; the *Transvaal Agricultural Journal*, with an article on "Veterinary Hygienic Principles Applicable to Stock in South Africa," by Dr. Arnold Theiler and C. E. Gray, M. R. C. V. S.; also one containing "Notes on Experimental Redwater Inoculations," by G. A. Maynard, and another on "Mange of Sheep," by James Chalmeres, G. V. S., were this month among the communications that I received, besides our exchanges. Amongst these latter, I must notice the *Semaine Vétérinaire*, which in its number of August 26, calls the attention of its readers to the meeting of the A. V. M. A., in most flattering terms. After taking notice of the various parts of the program, and especially of the clinical and surgical portions of it, the writer says: "Similar organization, when we have large meetings or congresses, would be a fortunate innovation. Numbers of veterinarians, keeping step with the progress of science through veterinary periodicals, hear every day of the advantages of a new mode of operation, the technic of which they are ignorant and cannot perform themselves. This would be a good way to realize mutual teaching, truly practical, by inviting a few of our colleagues, those that are initiated to those surgical

wonders or to the minutæ of difficult diagnosis, to be present at similar tournaments. Let our professional meetings take example of the American Veterinary Association, and there is no doubt our practitioners will come in greater numbers and follow the works of our congresses."

Let me give good warm thanks to *La Semaine Vétérinaire!*

* * *

But I have also other works of greater importance. First, a book on general surgery, and, second, one on special surgery. The "General Veterinary Surgery" is a translation from the German, by D. Hammond Udall, B. S., A. L., D. V. M., associate professor of surgery and obstetrics in the College of Veterinary Medicine of the Ohio State University. It is published by the house of Taylor & Carpenter, at Ithaca, N. Y. The original German work has seen two editions already and we are presented with the translation of the third. This, besides the name of the German author, are more than sufficient to speak in favor of the book. Indeed, Professor Dr. Fröhner is known all over the world, for his many valuable contributions to veterinary literature, which are above criticism. The translator tells us that he has undertaken the task to meet the need of an English text-book on the subject. I must confess that this is rather a surprise to me, as I fancy there are works which treat of the subjects that have found place in the work of Prof. Fröhner.

Let us glance at the contents and let the reader judge.

Wounds and their varieties; subcutaneous injuries of soft parts, inflammation, ulcers, fistula, gangrene, tumors, concrements and foreign bodies; hernia and prolapse; diseases of bones, of joints, of tendons, tendon-sheaths and mucous bursæ, of muscles, fasciæ and nerves, of vessels, of glands, and the surgical diseases of the skin and mucous membranes—the whole being completed with an appendix on congenital malformations of surgical importance.

The book of Prof. Udall is a very valuable addition to veterinary literature in America, and will find numerous readers,

as all good books do; but I fear it will be found hard to read on account of the peculiar way the printing has been done, so as to draw special attention wherever the author has desired to do it.

* * *

The book which I have said was on special surgery has for title "Surgical Diseases of the Dog and Cat." It is also a second edition and is written by Professor Frederick T. G. Hobday, F.R.C.V.S., F.R.S.E. Of course, it is published by the London house of Bailliere, Tindall & Cox.

The author is well known and his writings are found frequently in our English publications. Indeed, many of the contents of the new book have already appeared in the English veterinary papers. But it matters not, the book is most interesting from one end to the other. It is practical, it is as scientific as a little hand book of that kind can be and it is certainly complete and none can be compared with it, covering as it does in its 362 pages and its 241 illustrations the entire subject of diseases likely to require surgical interference.

The work is divided into twenty-three chapters, arranged as follows: General rules for treatment of the patient before and after a surgical operation; antiseptic preparation of instruments, drainage tubes, sutures, sponges, etc.; methods of securing; administration of anæsthetics; accidental and operation wounds; abscess, cyst, sinus, fistula and polypus; tumor, inflammatory growths, granuloma; operation on the ear; on the skull, face, lips and nostrils; on the eye and the eyelids; on the mouth, pharnyx, tongue and teeth; on the throat and neck; on thoracic and abdominal walls; on the stomach and intestines; on the rectum and anal region; on the omentum, liver, spleen and pancreas; on hernia; on the urinary organs; on the male generative organs; on the female generative organs; on cases of difficult parturition; on the limbs and tail. The last chapter is on the value of the Roentgen rays in diagnosis. Handsomely gotten up, beautifully illustrated, pleasant to read and full of valuable information, this little book comes just in

time when the specialty of canine and feline medicine is assuming in veterinary practice the place it is called to occupy.

A. L.

"THE VALUE TO THE NATION OF VETERINARY SCHOOLS."

We are fortunate in being able to present to our readers this month the address which Dr. Leonard Pearson delivered before the annual meeting of the Pennsylvania State Veterinary Medical Association last March under the above title. The author has gathered with great care and stated in eloquent and forceful manner, an array of convincing facts sufficient not only to impress the layman with the value of veterinary education, but strong enough to astonish many members of the profession itself who have hitherto failed to appreciate the great part which animal husbandry plays in the world's economy, and the close relationship borne by the teachings of veterinary science to the success of animal husbandry. When it is contemplated that in most lines of human endeavor the New World is unwilling to long remain far behind other civilized nations, it seems almost beyond realization that in some of the arts and sciences America has almost failed to make an impression, though surpassing the world in the majority.

While veterinary education has probably advanced more rapidly in the past thirty years in this country than in any other land, it has done so almost solely through private effort. Only in a very few of the states have veterinary schools been given any support, and these in such modest sums as to prevent great results being obtained. The cost of the equipment and yearly maintenance of all is probably less than any one of the six schools of Germany.

Dr. Pearson has reached a very natural conclusion, and that is that the initiative to wipe out this stain upon American progress must come from *within* the profession. Facts have accumulated bearing sufficient force to convince intelligent stockmen of the economic wisdom of providing independent veterinary

schools properly equipped to produce men in sufficient numbers capable of protecting the vast wealth of the live-stock industry; and veterinarians are the proper ones to place these facts before the public, who might otherwise indefinitely fail to appreciate the incalculable losses which it sustains through its failure to provide such means of defence.

No one in this country is better qualified to inaugurate such a campaign of education than the distinguished head of the Veterinary School of the University of Pennsylvania, and he has taken up the work with that earnestness which characterizes all of his efforts. It is easy to follow his leadership, because it is well directed and usually terminates successfully. It is intelligent, logical, and conservative; it has reason, argument, and nobility of purpose for foundation, with success as the goal. Therefore every earnest veterinarian should second this magnificent effort by giving the facts collected by Dr. Pearson as wide publicity as possible in places most likely to bear fruit, adding to them whatever of argument and incident which will tend to accomplish the great object in view.

SAN FRANCISCO VETERINARIANS PROSPEROUS.

When the great disaster of last April befell the beautiful City of the Golden Gate, it seemed impossible to get any tidings from our veterinary brethren, and it could only be conjectured through the harrowing accounts in the newspapers that they had participated in the general disaster. Many of them undoubtedly did suffer considerable losses, but it appears that none were rendered destitute through the conflagration and seismic disturbance.

Dr. Wm. Dougherty, of Baltimore, who is always first in rushing to the aid of unfortunate veterinarians, raised a little fund on the spur of the moment and forwarded it to Dr. Archibald R. Ward, of the University of California, with instructions to destribute it among needy veterinarians in San Francisco. After diligent inquiry and search Dr. Ward was compelled to return the amount to the donors, as none were found. In a letter to Dr. Dougherty,

Dr. Ward says: "Dr. Haring took up, before a meeting of the State Veterinary Medical Association, the matter of the distribution of the relief fund contributed by yourself and other Baltimore veterinarians. The discussion brought out the fact that there were no destitute veterinarians in San Francisco. They could not suggest the address of any individuals who might properly be recipients of this fund. Dr. Wm. F. Egan gave me a list of veterinarians, among them men worth hundreds of thousands of dollars, and I wrote letters to eight of the poorest of these, but none of these have answered and several of the letters have come back through the mail for want of a better address. I have exhausted my ingenuity in searching for veterinarians of San Francisco who are in destitute circumstances."

The REVIEW congratulates the profession of San Francisco upon its fortunate condition, and we know their brethren everywhere will rejoice at the good news.

INSPECTION OF FOOD FOR THE ARMY.

The comprehensive article in this number of the REVIEW detailing the very thorough inspection of meats and meat food products intended for the U. S. Army, reflects much credit upon those officials charged with the direction of the Subsistence Department. Written by a member of the force of inspectors, who is conversant with the work, and whose accuracy can be relied upon, we take it that, young as the service is, it will compare favorably with that of the armies of countries which boast of superior discipline and organization. Dr. Hughes' narrative will be read by Americans with pride, and should prove an incentive to army authorities to greater effort to bring the Army Veterinary Service to a position somewhat in keeping with the Department of Subsistence.

ATTENTION is directed to a new department inaugurated this month in the REVIEW under the title of "Modern Veterinary Methods." The purpose of this departure is set forth in an introductory note, and we believe the series of short articles outlined will be most helpful to practitioners.

ORIGINAL ARTICLES.

INSPECTION FOR THE U. S. ARMY.

THE SUPERVISION OF THE PREPARATION OF MEATS AND MEAT FOOD PRODUCTS FOR THE AMERICAN SOLDIER.

By D. Arthur Hughes, Ph.D., D. V. M., Cornell University.

Some forms of our professional service give opportunity for open display of skill and call forth the plaudits of onlookers. Other forms of our work in which there is no chance for show or ostentation, yet which may be of far greater value to mankind than that exhibited in the exercise of skill on an individual domesticated animal, go unrecognized. The supervision of the preparation of meats and meat food supplies for the United States Army, work which has been assigned to veterinarians in recent years, has made no noise in the world, yet the statement may be ventured that, in the prevention of disease in man, in its prohibition of the use, for army supplies, of meats or meat food products unsound, unhealthy, unwholesome or unfit for human consumption, the professional supervision of the preparation of those supplies has been of immense value to the thousands of men in the regular army, as well as to men of the regiments of State militia who go into encampment with the regulars in summer manœuvres, and receive much the same rations as United States soldiers. Much of the best scientific work of the government, indeed, for the accomplishment of which many highly trained men are employed for the public benefit, is not mentioned in the lay press, and sometimes is not well known in the scientific world. Yet considerable character may be necessary that it may be efficiently done. In the case of the inspection for the United States Army, of which I am to speak, this efficiency is abetted by the austerity of the staff officers who supervise it, by a hearty desire on the part of the inspectors to serve the people, and by a warm personal loyalty to the soldier in garrison and field, a stirring patriotism which touches the character of the men who have it in charge.

This particular inspection is eminently useful to aid in the protection of numerous lives. The experience of the armies of the world shows that more deaths occur from disease than by the bullet. Disease is engendered in the army in war time by the exposure and ever-changing environment of the men, or, maybe, by improper food or drink. The experience of the Japanese in the Russo-Japanese war, as reported by Major Seamons of our army, shows that, by attention to hygiene, the terrible decimation of disease may be greatly reduced. The disasters from the bullet, and disease in camp, must be looked to at the front by the officers of the line and surgeons of the regiments. The matter of proper food supplies for the regiments can largely be attended to at home, from which most of the food supplies, in the case of our own army, are likely to come.

The inspection of food supplies for our army affords protection for the soldiers in garrison or field, whether on duty here or in our tropical dependencies.

It is doubtful whether any civilized country in modern times has realized more fully the necessity of a strict supervision of the preparation of meats and meat food products for its soldiers, or made a more complete provision for their inspection during the whole course of the preparatory processes up till the very moment of shipment, than has ours. Quietly, unostentatiously, for a number of years, unknown to the mass of the American people, unknown probably to a multitude of men in the army, unknown even to the great majority of medical men, there has been going on, at several of the great packing centres, an exceedingly close inspection, during all preparatory stages, of meats and meat food products for the American army. The work has been done, and is being done, by veterinarians stationed at the centres from which most prepared meats for the army come, acting under United States Civil Service rule, in the employ of the War Department, and devoting their entire time to the work under immediate orders from staff officers of the regular army, detailed usually as purchasing Commissaries

of the Subsistence Department, and stationed in the same localities.

To be properly done the work calls for knowledge of packing house industries on the part of the inspector—the industrial side of the work; a practical knowledge of the veterinary sciences—the scientific side; the supervision of the performance of many business matters—the business side; besides, there is a personal side, for, though the inspector has some leaway for judgment, he looks to the officers for final orders. We may, then, in this paper, look at all sides of the work, and the responsibilities which may accrue in its performance.

I. THE INDUSTRIAL SIDE.

The prerequisite for an understanding of army inspection—Fresh and prepared meat foods for the army—The kinds of meats and meat food products required—The aim of the inspection—The specifications.

For success in inspection of subsistence supplies for the army a first hand knowledge of packing house industries, not so much bookish as practical, is necessary. That is to say, the prerequisite for an understanding of the preparation of meats and meat food products for the army is a preliminary knowledge of all details of packing house industries in so far as they touch army orders for supplies.

For the most part the inspection, of which we are speaking, does not concern itself with fresh meats, or with the numerous prepared foods other than meats and meat food products. True, the Subsistence Department of the army has an excellent veterinary inspector, Dr. Loveberry, in San Francisco, through which port a very large part of the supplies for our troops in the Philippines go, and he, under the direction of Major Krauthoff, Chief Commissary of the Department of California, carefully examines the bulk of the refrigerated meats sent from this country to the islands. But, in general, fresh meat supplies for the soldiers are obtained by purchasing, in or near the place where the troops are located, live animals in small or

large droves. These are bought, examined before death and after death, under strict rules laid down in the army regulations. Fresh meats in the form of halves, quarters or cuts, in small quantities, may be purchased in the neighborhood of a fort or camp, but only when the purchase tallies squarely with the precautionary rules of the Subsistence Department of the army. As the veterinary inspection for the army at the packing centres does not, for the most part, at present, concern itself with fresh meats, so also it has nothing to do with many other prepared foods needed for the army sustenance. A great variety of subsistence stores are needed by the army, with many of which the veterinarian, as such, has little or no concern. But the veterinary inspector serving the Subsistence Department, as a food specialist, is apt to become interested in food supplies, or provisions as a whole, perhaps, for instance, coffee, flour, canned goods, as many of the practical questions, chemical and physiological, on preservatives, adulterations, discolorations or defects, are those which concern him in his own work.

The kinds of prepared meats and meat food products required for the army are enumerated in Circular No. 9, office of the Commissary General, of November 19, 1901, and in the printed blanks of "Proposals for Army Supplies" sent to responsible parties expecting to bid for contracts to supply the army with necessary subsistence stores, as advertised in public places by the purchasing commissaries. They are, first, dry salt meats in crates or cans for the tropics, the Philippine or Hawaiian Islands, Porto Rico and possibly Cuba. Those in crates are 10 to 16 lb. bacon bellies or 12 to 16 lb. hog hams. Those in cans are 10 lb. average weight bacon in cans each containing 9 lbs., or 10 lb. average bellies in cans each containing ¾ of a lb. of bacon. Second, dry salt meats for United States posts, which are 10 to 20 lb. bacon bellies in crates. In addition dry *sweet* cured bacon bellies, 10 to 16 lb. average, have sometimes of late been sent to the Philippines, while light bacon bellies and hams commercially cured, but with extra smoking, are obtained for monthly supplies for United States

posts. They are, third, canned, prepared, (cooked) meats and meat food products, for either the tropics or United States posts; which are as follows: beef, corned; beef, roast; hash, corned beef; hash, fresh roast beef; chipped beef; lard; oleomargarine; Vienna sausage; beef, tongue.

The simple enumeration of the meats and meat food products required by the army makes it obvious at once that it is necessary for the inspector to have a knowledge of packing house industries. He must at least know how meats and meat food products are prepared, the stages of their preparation, the different forms of preparation, the processes, the kinds of packages. Obviously the inspector, who is to give trustworthy evidence of the satisfactoriness of any can, box, crate or other package containing any one of these meats or meat food products prepared for the army, must thoroughly understand, first, the methods of handling animals up to the moment of slaughter, and, second, the methods of handling meats and meat food products up to the moment they are turned into the trade. The aim of this inspection is to follow army meats and meat food products from the cutting from the carcass or beginning of manufacture, up to the time the products are crated or boxed ready to turn over to the Quartermaster's Department for shipment. The inspector must follow sedulously the products in such a way that he may be able to certify to their soundness and fitness for human food. His immediate duty, as far as the contracts go, is well marked out for him; but his capability of inspecting after slaughter presupposes a familiarity with all that has been done up to the close of slaughter. For he has to be ready constantly to give opinion, based on his practical experience in the various forms of ante-mortem and post-mortem inspection, as carried on by the Department of Agriculture.

He possesses expert information on the yardage of animals, the killing, dressing, cooling, cutting of the different kinds of animals, and the government inspection of meats before they reach his hands. He is also acquainted with the packing house industries immediately concerned in the preparation of army

meats and meat food products. These we can here only outline.

First, in the preparation of army dry salt meats, he must know well all the details of three stages, the cellarage of the meats, their smoking, and their packing. With regard to the cellarage he must be informed on conditions required when meats are layed down in the dry salt cellars, how the cuts are cared for, the methods of cure, kinds of salt used, resalting and brushing of the meats. With regard to the smoking he must know the methods of drying meats, the woods used for making the smoke, the temperature at which the smoke house is kept. In the packing of dry salt meat for the army he must be familiar with every item in the methods of wrapping, crating, boxing and canning.

Second, as large quantities of canned (cooked) meat and meat food products are required by the army, and big contracts are let for their preparation, the veterinary inspector must needs have exact knowledge of the canning industries in so far as they have to do with the goods needed. In the preparation of canned roast beef he must familiarize himself with all the stages in the work, the cutting from the carcass of the primal parts specified in the contract, the soaking of the meat, the parboiling and removal of extract, the cutting up of the meat and removal of waste, the stuffing of cans, weighing, processing or vacuum work, the lacquering and labelling of cans, boxing and stencilling. In the preparation of canned corned beef the cuts must be known, the pickling or corning in the cellars, the boiling, removal of waste and the later work of canning, weighing, processing and boxing. Different, again, is the industry of making corned beef hash for the army, in which the inspector notes that the same manufacturing process is used as in the preparation of corned beef, except that the corned beef is minutely comminuted in a "hopper" and mixed with onions, potatoes and condiments; nevertheless, he must not miss following every stage of its preparation. In the preparation of chipped beef there must be familiarity with the parts of the carcass used and their preparation by drying and smoking for the next stage of

chipping or slicing in the machines, followed by packing, weighing and boxing. Further, in the manufacture, under contract, of Vienna sausage, the inspector must know the meat materials used, how they are combined, and the machine work in their mixture, the filling of the sausage casings, the stuffing of the cans and the final processes up to the boxing. In the putting up of beef tongues there is a necessity of knowing how they are pickled, boiled, their waste removed, skinned, tested for rancidity, stuffed in cans containing a soup or bone liquor, processed, weighed, boxed and shipped. Nor of the manufacture of lard and oleomargarine must the inspector be ignorant, for both of these food products are required by the army. In lard manufacture he must know the parts of the hog used, the methods of rendering, the use of stearine, the removal of cracklings by straining, the cooling, agitation, drawing off from tanks, canning and weighing. In the manufacture of oleomargarine he must certainly know the ingredients used, their quantity and kind, the methods of churning, pressing, weighing and finishing the product, how it is packed and shipped. In all the packing house industries, in a word, which have to do with the preparation of any kind of meat or meat food product for the army, he must be an expert.

If he is not an expert when he is appointed, he can hardly do otherwise than shortly become adept in all matters of the preparation of army supplies. He becomes so by constant observation of the putting up of subsistence stores for the army by the packers, and by constant, ardent study of the specifications of the contracts which he is duty bound to have carried out. The minutæ of the requirements on the part of the government from the packers, who agree to and sign the contracts awarded to them, are expressly stipulated in each case. As the army is constantly purchasing large quantities of the supplies mentioned, the inspector must of needs become intimately acquainted with all the processes of their preparation. To the end that the government may know what is being done, and that nothing can go wrong, it is agreed by the contracting

parties, that, in addition to the inspection provided for by the Department of Agriculture, a veterinary inspector of the Subsistence Department of the army shall be allowed to follow the meats and animal products in all their preparatory stages. To the end that this inspection may be made, notice must be sent by the packers to the local commissary office; in some cases, of the time when the preparation of meats is to begin, in other cases, the time must be given of the various stages of preparation. As canned goods are put up very rapidly the notice of the time of beginning is usually all that is necessary. But in the preparation of dry salt meats notice must be given: of the dates when the meats will be put in dry salt; of the date of first turning and resalting; of the date of second turning and resalting; of the date when the meat will be placed in smoke; of the date when the meat will be removed from smoke; of the date of packing.

As the inspection proceeds, at the times when goods are being gotten ready, the understanding is that there may be rejection of meats at any stage of their preparation if the specifications are not carried out. The inspector may intervene at any time that things go wrong, or where the work is adjudged not up to the letter of the specifications of the contract. There are standards whereby he can judge whether the product in course of preparation is satisfactory. Samples, representing the kind of goods proposed to be sold to the army, are submitted by bidders. Right is given officers and inspectors to open packages to examine them for quality, weight, carefulness of packing, and whether the product is up to the standard of the sample submitted. These tests are scrupulously made. In the manufacture of supplies it is understood that *fresh* material is all that is wanted. The army assures itself that it gets this: for, in the case of salt meats, every piece layed down in the cellars is seen by the inspector; in the case of canned meats contracts read that canning must not be done until such a time, after the contract is awarded, that the commissary officer can know the time of start and give orders to his inspector accord-

ingly. Inasmuch as, after the packing of canned stuffs, the month and year of packing must be stamped on each can of goods for the army; and be stencilled on each box or crate containing dry salt or canned meats, both the inspector and packer are held responsible if the contents be found wanting in any particular.

II. THE SCIENTIFIC SIDE.

Possible abuses in parts of animals used—The chemical questions—The sanitary questions—Constituents of supplies—Possible failure to use standard products—Cures and curing—Entomology, bacteriology and pathology in army inspection.

The aim of the veterinary inspector for the army, as a scientist, is the prevention, in the preparation of supplies, of the utilization of meats or meat food products which are unfit for army purposes. In the course of the preparation the aim is to prevent abuses which lead to such unfitness.

First of all, there may be abuses in the use, for filling the contract, of parts of carcasses forbidden by its terms. In the canning of roast beef the cuts brisket, chuck, or plate, from young fat cattle must be used, while the same parts from old cows, stags, bulls and light skinny cattle are forbidden, as well as flank cuts from any. In the preparation of corned beef much the same conditions on parts apply, except that instead of one piece of chuck, and one piece of either brisket or plate being allowed to each can, as in case of roast beef, the pieces must be of uniform size, but may be of varied number. In both roast beef and corned beef the meat must be of good color, well trimmed, free from blood clots, skin, sinew, gristle and excessive fat. In the canning of chipped beef, the outside muscles of the thigh are not allowed, only the inside muscles and "knuckles." Beef tongue cans must have only one two-pound tongue in each can, no pieces, and the tongue must show no evidence of stomatitis, nor blood clots, and must be of good uniform color. In the putting up of Vienna sausage an oversight must be had of the kind of meats taken from the pickling

vats, the proportions used, together with a supervision of the comminution of meats in the machines to see that no parts or portions are used deleterious to health.

Again, in the preparation of barreled supplies, mess pork and oleomargarine, miscellaneous questions may arise. Oleomagarine manufacture is conducted usually with the greatest regard for cleanliness. Yet abuses may arise in the manufacture and the inspector should know the grades of the product, and must see to the contents of barrels, and judge quality by taste, color, smell and firmness. In mess pork barrels he should judge upon the cuts and age of the contents, as there are stipulations requiring recently made products, definite number of pieces to the barrel and wholesome meats.

In the cutting of hams and bacons, to be latterly shipped in crates to the tropics or United States posts, abuses may arise which must be headed off. Hams must be cut two inches from the "aitch" bone (ileum and ischium) and shank cut off above the hock joint (femero-astragaloid), without exposing the marrow of the femur. They must be closely faced and both the cushion and flank sides cut close, butt ends well rounded and cut under, making symmetrical contour or well rounded hams. The hams must be from light, prime hogs in good condition and must weigh not less than twelve, nor more than sixteen pounds. That is, the hams must be free from contusions or wounds, fresh, well bled out. Again, in the cutting of 10 to 16 pound bacons for the Philippines, or 10 to 20 pound bacons for the United States posts, the specifications in the contracts are specific and abuses must be watched for. The only cuts allowed are bacon bellies, and in no case, when the bellies are layed down as green (fresh) meats in the cellars for salting, must any piece exceed or be less than the stipulated weight. The bacons must be square cut, free from black pigmentation of the mammary glands, sweet and sound, not too fat, a good streak of lean running through each piece, and not more than two and a half inches thick at the shoulder end. All these provisions must be carried out, and at the same time largesse is

given to the inspector in the words "sweet and sound." The bellies must have no contusion, wound, abscess, or clots, must be well bled out, not from old boars or stags, nor be roughage. The bellies must be absolutely free from lesions of infectious diseases.

The preparation of dry salt bacons to be hermetically sealed, after curing, in nine pound cans, and shipped to the Philippine Islands, involves many such questions as arise in the preparation of dry salt meats for crating. In the cutting, cooling and laying down bacon in the dry salt cellars the judgment of fitness may be made, varying with the interpretation of the phrase in each contract that the meats must be "from light prime hogs in good condition, sweet and sound." Meat, according to the United States Food Standard * "is any clean, sound, dressed and properly prepared edible part of animals in good health at time of slaughter." "Fresh meat is meat from animals recently slaughtered and properly cooled until delivered to the consumer." "Cold storage meat is meat from animals recently slaughtered and preserved by refrigeration until delivered to the consumer." These quotations may serve as guides to the inspector in his selections. No bacons could be accepted unless from animals recently slaughtered, properly cooled, the parts properly cut, of definite weight and shape, free from bruises, wounds, infection or other diseased condition, not unclean, sour, too soft or squashy, in every way in prime condition.

As great quantities of lard are prepared by the packers for the army, the utmost care must be exercised in its manufacture according to order. "Lard," says the United States Standard for Food Products, "is the rendered fresh fat from hogs in good health at the time of slaughter, is clean, free from rancidity, and contains, necessarily incorporated in the process of rendering, not more than one per cent. of substances other than fatty acids and fat." † The army orders require the lard to be *kettle-*

* Standards of Purity for Food Products. Circular 19. Office of Secretary, U. S. Depart. of Agri. P. 5.

† Standards of Purity for Food Products. Circular No. 19. P. 5. Office of the Secretary, U. S. Depart of Agri.

rendered, to be made from fat from the backs of hogs, leaf fat and leaf fat scraps, to contain not more than five per cent. of stearine as a hardener, free from bits of skin, muscular tissue or other sediment, free from dust, dirt, clean in every particular. Abuses are not altogether infrequent in lard making, so the inspector must look sharply into the original fat used, the percentage of stearine added, the kettle rendering as distinguished from steam rendering, the straining after rendering and the general cleanliness of the whole process.

Besides the possibility of the use of parts of carcasses excluded by the terms of the contract, certain chemical questions may arise for settlement. In these, as in all scientific questions, the inspector is a referee and should use the professional information at his command for the good of the service. The aim is to exclude what is forbidden and what may be deleterious to health.

Under the new federal meat inspection and pure food laws there is little chance left for the use of dyes, chemicals or preservatives, in meat packing, hurtful to human health. Besides, the terms of the contracts are so explicit, and the inspection for the army is so sharp, that few abuses are likely to arise in the preparation of meats for the soldiers. Nevertheless, there is nothing amiss if the inspector is alert in all matters relating to the determination of preservatives which have been used in meat preparation, and in the determination of artificial colors hitherto, at least, used in the trade. In the preparation of army dry salt meats the only chemical actions allowed to further preservation are those of clean American (Henderson usually) sodium chloride and the creosotic effects of wood smoke. In some cases brown sugar (saccharose) may be used together with sodium chloride; but in all cases saltpetre and boric acid in any amounts are excluded. As the liquids used in the vats for pickling meats are now subject to analysis, the constituents being definitely known to the officers of the government, through the agency of analytical chemists of the Bureau of Animal Industry stationed in laboratories at the packing

centres, there is little danger that corned beef, so much of which is bought by the army, will be hurtful. In sausage making, again, the pickle used as a preservative for the meats before they are comminuted, is subject to government analysis. Sulphites are forbidden and the government specifies the kinds of vinegars and amounts of saltpetre which may at present be used. All the processes of sausage making are under the watchful eye of officers. But be the contents of cans ever so well looked after, poisoning may occur, and often enough does occur, from the chemical action of the contents of a can on the tin, or from poisonous injurious substances coming in contact with the contents of the can. The withdrawal of air from cans, and the sterilization by heat of the contents, destroys all micro-örganisms and prevents putrefaction and the possibility of ptomaine poisoning. Nevertheless, the Department of Agriculture, to exclude possibility of poisoning from chemicals, makes provisions for containers: these refer to the thickness of the tin, the injuries which may arise if poisonous, chemical substances by any fault coming in contact with the contents, especially if lacquer, through rusting at any small point, should come in contact with the meat; in the latter case chemical action and bacterial action unite to render the contents putrid. "If the tin plate is lacquered, the lacquer completely covers the tinned surface within the container and yields (should yield) to the contents of the container no lead, antimony, arsenic, zinc or copper or any compounds thereof, or any other poisonous or injurious substance." * These are some of the chemical questions which may arise, and are at any rate involved, in army meat inspection.

The main point is, that a practical knowledge of preservatives is necessary. The inspector should know what they are, how used, their effect on the taste and appearance of meats. This presupposes a knowledge of harmful preservatives such as salicylic acid, benzoic acid, boric acid and borax and formal-

* Standards of Purity for Food Products. Circular No. 19. Office of the Secretary, U. S. Depart. of Agri. P. 6 footnote.

dehyde and their detection, as well as the detection of such artificial colors as coal tar dyes, copper, turmeric and caramel.

It also presupposes a knowledge of harmless preservatives, what they are and the standards for several of them. This implies a knowledge of the chemical action of the drugs on meats and a knowledge of the changes in the physical appearance caused by them. Analyses may not be expected to be made by the inspector. But a practical knowledge of the preservatives and their effects is necessary. The veterinarian may be a consultative and advisory officer in these particulars. He is engaged in the duty of aiding in the preservation of health of men in the army and bears a relationship to the pure food movement which has lately been effective in this country. His purpose, as an official for the army, is to exclude the use of harmful preservatives, though it is unlikely that they would be used as they are praetically forbidden by the contracts. The army is aided in this protection against noxious drugs, or noxious foods preserved by drugs, by its own inspectors. They are on the spot with expert information watching every bit of the material put up for the army and, if it were necessary, could head off harm. They are there to guarantee the army pure food. Fortunately, as I have said, the work is now aided by the chemical laboratories set up at the large packing centres by the Bureau of Animal Industry. In addition a knowledge of the usual contents of commercial cans—of meat or meat food products—may now be obtained by consultation with practical inspectors, recently placed in the canning departments in the employ of the Bureau of Animal Industry, men who have had large, practical experience in that particular industry.

Inasmuch as the inspector for the army looks after definite lots of meats purchased by the government, and must follow them in the course of their preparation, he can afford to be a little more autocratic in the supervision than under ordinary circumstances, particularly as the responsibility for their proper

preparation comes directly upon him. He therefore sees that they are sanitarily handled.

Indeed, he receives direct orders from the officers in charge to that effect. He can pass upon the places where meats may be put, whether trucks are satisfactorily clean, he can stop a person of filthy appearance from handling his supplies. In the wiping and brushing of dry salt meats he must require proper cloths or brushes. He must see that meats are not placed on the cellar floors, but on racks. He must see that in no part of the cure water touches bacons or hams; and that in all the processes they are kept free from dirt or filth. He has charge of the sanitary handling of pickled meats in the cellars which are to be made into army corned beef. In the canning processes he must see to the sanitary handling of contents of cans, and even of the cans themselves; forsooth he must know that the cans are free from dust or grime before meats can be packed in them.

Under so rigid an inspection there can hardly arise abuses in the constituents of the supplies. Nevertheless, the inspector must be sure that an abuse of that kind cannot creep in. In lard making he should see the amounts and varieties of fat used, exclude adulterants, note the percentage of stearine used and forbid excess. In oleomargarine making, whenever he has a supply to attend to, he is required to study the constituents of the supply, the processes of making, the color, taste, freedom from rancidity. There is little likelihood that in these industries, nor in any other, the packers would attempt anything underhanded in the preparation of army supplies. Still it is the duty of the inspector to be certain that nothing occurs to lessen the food value of the standard product required to be put up, and a quantity of which was submitted as a sample when the purchase was made by the commissary officer.

That, if it were necessary, he may be able to prohibit the use of other than standard products, a practical and scientific knowledge of the changes which meats undergo under various circumstances is necessary. It has been said that there has

sometimes been a tendency to use poorer grades of meat for manufacture into food stuffs which bring higher values. Information is therefore needed by the man who inspects, on parts, cuts, odor and appearance of fresh products; and the color, odor, and general appearance of aged meats. The inspector should know the appearance of old, deteriorating meats, odor of unsound meats, the possible frauds which might be practiced. He should know the changes which meats undergo during refrigeration, the ripening of meats, moulding—that is, the action of cold, bacteria and fungi. It is well known, for example, that great danger appears when refrigeration is slackened in fresh meats, bacterial processes are set up, followed by decay of the meats and an insufferable odor. Such meats are unfit for human food, and if consumed, bring on severe indigestion and violent diarrhœa.

The questions of cures, and the curing of dry salt meats, bring in many scientific points practically applied. What length of cure has to do with preservation, is a matter which has been much discussed. The army adheres to the old fashioned ideas of cure, a long salting in dry salt, six days for drying out and seven days for smoking. Still, the scientist having the care of meats undergoing curing and smoking, will not fail to study the different kinds of cure and their effects, the action of creosote on meats and the details looking towards healthfulness in these processes. The army will not allow anything but maple or hickory wood to be used in smoking; it requires its meats to have a long smoke and a long drying out. Many questions arise here: why these woods and the prohibition of elm wood or sawdust, the effect of smoke as a preservative or flavor; shrinkage during smoke; the effect of smoke on meat by absorption from without; the effect of smoke on the body of the meat.

Furthermore, a practical knowledge of entomology has its bearings in army inspection. For example, account must be taken of the destructiveness of the meat or blow fly (calliphora vomitoria Linn.) and the blue bottle fly (lucilia cæsar Linn.)

to meats, and precautions taken accordingly. It is well known that these species of the diptera lay their eggs on fresh meats at any point of exposure and the maggots cause it to become putrid. Again, the bacon burrower has sometimes raised havoc amongst large quantities of bacon, causing their unfitness for food. There are special insect plagues which must be guarded against in packing meats. Hence the army habit of having bacon canned, or wrapped, first of all in two thicknesses of oil parchment paper, with cloth paper between, then stitched in burlap.

The veterinarian, in his capacity of army meat inspector, is not expected at the same time to do the work of a laboratory bacteriologist, though it might be well at times if he could make some bacteriological tests. He should, however, have expert bacteriological information, obtained alike from practical work in the laboratory as well as observations on infections which press home the principles of bacteriology. It is easy for pathogenic organisms to find lodgement in meats through contaminations taking place in the handling of meats unhygienically. Of course this is minimized, in the case of dry salt meats, in the salting and smoking processes; and, in the case of canned goods, by the heating in the retorts. Nevertheless too much care cannot be exercised in keeping the meat clean. It has often been noticed by canning room foremen that the evolution of gas, from the presence of saprophytic organisms, often takes place if, through any contingency, bad meat should get into the cans, even though the cans have been in the retorts; why, nobody knows. In this way the cans "blow up", that is, swell and burst, as may be the case also if the tiniest of holes lets air into the cans. Here again the duty of the inspector is to exclude the possibility of harm, for the sake of the health of the soldiers and the protection of public property. Should any cans go wrong after they have become public property, the packers must reimburse the government. If many cans went wrong, a measure of responsibility rests upon the inspector. As the packers must guarantee that canned goods

will remain wholesome for a year, it is to their interest to throw out leaky cans, reprocess them, driving out the air, and make them fit for sale. They will not intentionally place contaminated meat in cans. But the work must be watched by the expert, alike to protect the soldiers and himself.

Harm from other pathological considerations to army meats is minimized by the excellent inspection given to all meats in the big establishments by the Department of Agriculture. In the inspection of each piece of meat in lots set aside for army supplies, the army inspector must usually reject pieces showing bad blood clots, offensive contusions or wounds or abscesses, as each piece must be wholly sweet and sound. Sometimes hams, for instance, after strict care, in the inspection when they are cut from the carcass, show, at the close of the smoking, a puffed condition under the skin near the femero-astragaloid joint, due to saprophytic organisms within the ham bringing about an evolution of gas. All such puffed hams must be rejected, even though sticking with a steel tester on the face of the ham discloses no odor. These hams are foul within, especially in the region of the ischio-femoral joint. Under no condition can a piece of meat in a pathologic state be accepted.

III. THE INSPECTORS FOR THE SUBSISTENCE DEPARTMENT OF THE ARMY.

What the kind of work demanded—How inspectors are appointed—The beginning of the work—Its extension and present scope—Object of the work.

Evidently inspectors, who were to be appointed to do this work for the army, must be veterinarians experienced in the various branches of the packing house industries. When the War Department, some years ago, decided to institute such an inspection for the protection of its stores, put up at the packing houses, against possible fraud, it was no doubt seen: first, that the inspectors must be trained veterinarians, understanding the live-stock trade, breeds of animals, their grades, the methods of handling them in the great centres, the diseases of animals and

their detection, the grades and kinds of meats; second, that the inspectors must be accustomed to the packing houses and must have some familiarity with packing house industries; third, that they must be responsible, trustworthy men, acquainted with the federal inspection as it had been carried on by the Bureau of Animal Industry for years, and who could be counted on to follow implicitly orders coming from Commissary Officers of the Subsistence Department of the army who would have charge of the work.

How are inspectors appointed? From the Civil Service list. The Commissary General of the army at Washington makes application to the Secretary of Agriculture for an inspector from time to time as necessity demands. The Secretary of Agriculture refers the matter to the Chiefs of the Bureau of Animal Industry, who, through the Secretary of Agriculture, recommend a man to the War Department. The Commissary General then sends official notice to the Inspector of the Bureau of Animal Industry who is recommended. If he assents, the requisition is made for him by the Commissary General, he sends in his resignation, in official manner, from the Department of Agriculture, to take effect the day he gets his new commission from the War Department. Shortly his commission arrives, he is ordered to his new station, and proceeds to the place designated. This is one of the methods of transfer and promotion, the inspector, in both Department of Agriculture and War Department, remaining on the Civil Service list, and submissive to its rules based on the Civil Service law. The inspectors for the Subsistence Department of the army have, in each case, therefore, served faithfully several years in the Bureau of Animal Industry, Department of Agriculture, and have been recommended as fit persons to carry on the inspection for the army.

At first, inspectors were appointed only at Chicago and Kansas City, the first and second largest live-stock centres in the United States, from which naturally most of the prepared meats and meat food products for the army came. This was

five years ago, Dr. C. W. Johnson, being assigned to Chicago under orders from the Purchasing Commissary of the army there, Dr. McKinney at the same time being ordered to Kansas City under the direction of the Purchasing Commissary at that place. The merit of these men, and the value of their work, encouraged the Subsistence Department to make other appointments.

In the spring of 1906 came the extension of the work to its present scope. Dr. G. A. Lytle was appointed at Chicago, because of the increase in amount of work at that point; Dr. D. Arthur Hughes at Omaha, the third largest live-stock centre, Dr. C. Loveberry at San Francisco, to inspect meats prepared in the region, and fresh meats shipped by transport to Manila. At present there are five inspectors; two in Chicago, one in Kansas City, one in Omaha, and one in San Francisco.

The object of the inspection is to supervise the preparation of all meats and meat food products for the army. It may be alleged that the inspection for the army is a duplication of the inspection carried on by the Bureau of Animal Industry under the new laws. This is true only in small part. The army inspector has direct orders on definite contracts. He is the special agent of the War Department appointed to watch the preparation of its stores and to see that they are beyond reproach. The appointees have special preparation for efficiency in the army work, by reason of experience in the inspection of the Bureau of Animal Industry; they fall into the new work with ease, and probably are valued because of their professional judgment and advice.

IV. THE BUSINESS SIDE.

The duty of the inspector in business matters—How he is held to duty—What the business matters are—Reasons for care in preparation of stores for shipment—The business responsibility.

On the business side, the purpose of the inspection is to sternly require that all details of the contracts for supplies, entered

into between the United States Army and the packers, should be fulfilled by the packers entering into the agreement. The inspector in his work is the representative of the Subsistence Department, acting under direct and immediate orders from the commissary officer of the army in the city in which he is stationed, in the business matter of the preparation of meats and meat food products under contract for army supplies. He is, therefore, charged with the responsibility of seeing that all specifications expressly laid down in the contract, to which the packers have given their hand and seal under bond, are carried out by the company concerned.

If the packers are bound by the terms of the contract, so also the inspector is held to his duty by certain securities. These are, first, his oath of office, in which he swears allegiance to the United States and to the special business of the War Department, which it is his duty to perform. Copies of this oath are kept at the local office where he takes it, and at the Commissary General's office in Washington. This binds him at the beginning, indeed, all through his work. Second, each box or case of goods, the contents of which he has inspected, has his stencil mark thereon. On the top of each box is lettered in India ink or lamp black, words much as follows: "Inspected, C. W. Johnson, Inspector, U. S. Subsist. Dept., No. 1." Wherever such a box and its contents goes this is a mark of reference and publishes his duteousness or induteousness. Third, after the contract is filled and the stores are ready for shipment, the inspector gives a certificate of inspection to the government, which is in effect an affidavit that the work is properly done. Here I may append a copy of the inspection certificate furnished for dry salt meats, to show the seriousness of such a document if its representations are false:

(FORM NO. 10.)

INSPECTION CERTIFICATE.

I, John Smith, a duly appointed inspector of meats, in the city of Chicago, County of Cook, State of Illinois, do hereby certify that, at the request of Captain , C. S., I inspected, on the day of , 190 , the provisions below enumerated, purchased as supplies for the U. S. Army, of Swift & Co., by Captain , C. S., U.

S. A., and found them to be in quantity and quality as follows: 100 crates Bacon, issue , Gross wgt. , Net , Tare , Cubic measure , Inspector's stencil, No. 6.

The above described lot of bacon was dry salt cured, was in process of cure for 30 days, during which time it was turned and resalted on the following dates , 19 . After curing, the meat was brushed with a dry brush and has not been soaked, dipped or washed. Each piece of meat in the lot is from light prime hogs in good condition, well cured, sweet and sound, was allowed to dry out while hanging for 3 days, then was thoroughly smoked in dry smoke from hickory wood (not from sawdust) from , 190 , to , 190 . In addition the meat was allowed to dry out from to . In addition to the above, I further certify that all other requirements in the specifications of , 190 , and your circular of Nov. 19, 1901, have been complied with, that to the best of my judgment and belief the product referred to herein is from carcasses free from disease, and was inspected in accordance with the Rules and Regulations for the inspection of live stock and their products, promulgated by the Secretary of Agriculture, and is wholesome, sound and fit for human food.

JOHN SMITH, *Inspector.*

(SIGNED IN DUPLICATE.)

Dated at Chicago, Illinois,
this day of , 1906.

NOTE.—This Certificate should accompany the voucher on which payment is made for the stores herein referred to.

Duplicates of this, and all certificates, are made out, one being kept on file at the local office, the other sent to the office of the Commissary General at Washington. Knowing that this certificate must be given, there is a greater zeal in seeing that the contract is properly filled. If at any time it is shown that the goods are not what they are represented to be, the charge would be a serious one. These three securities stir the sense of duty of the inspector and make him vigilant in the business of food preparation.

The inspector is charged not only with the prevention, in food preparation, of anything occurring which would be detrimental to human health, he is also charged with many business matters which are the concomitant of the scientific inspection. The specifications of the army contracts are, beyond controversy, definite on all matters, not only on what the meats and meat food products shall be, and how they are to be prepared, but how they shall be put up for shipment. There are definite instructions, in the case of dry salt bacons and hams to be put up

in crates, on what shall be the wrappings of the pieces, the number, size, and average weight of pieces to be in a single crate; the length, depth, breadth and thickness of the crates, the kind of nails, the width of iron straps to be put around the crates for their protection, the shipping marks, and where they shall be placed. When dry salt bacons are to be canned there are instructions on the total weight to be in the can, the number of pieces to be placed therein, the size of the cans, their lacquering and labelling, as well as all the details on boxing. In the case of cooked meat foods, or meat food products, there are specifications on amounts to go in a can. their size and weight, the way the meat shall be packed (whether by machine or hand), the lacquering and labelling of cans, number in a box, together with the details on shipping marks.

On the business side of the work the detailed orders must be carried out in their minutæ. If, though, there are two points upon which most emphasis is laid, they are the marking of boxes for shipment, and the ascertainment of exact weights. Perhaps the marking of army meat boxes may interest the curious. I, therefore, give the usual method of marking a dry salt meat crate.

TOP OF BOX.

To whom assigned.....
Number, pieces, weights, cubic measure.....
Inspector's stencil.....

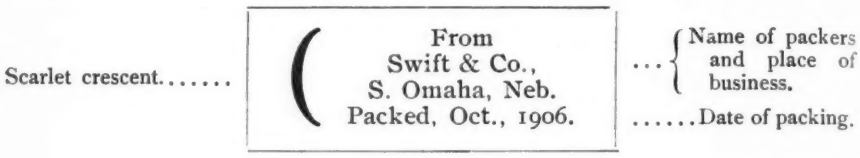
Depot Commissary,
Manila, P. I.
No. Pcs. Gross Tare Net
Cub. Meas.
Inspected
D. A. H.
Inspector U. S. Sub. Dept.
No. 1.

ONE END.

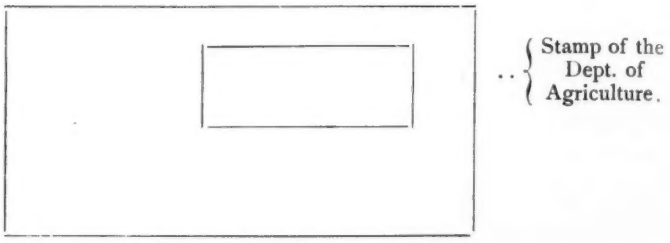
Scarlet crescent.....

Bacon, issue. Dry salt cure.
U. S. Sub. Dept.
T. B. H.
Packed, Oct., 1906.

..... Product.
.. { Depart. and initials of Commissary.
.....Date of Packing.



ONE SIDE.



There are good reasons for this care in marking crates and boxes. If everything is specified, the packers can turn out neater packages. Since their name appears on the crates and cases the stencilling will be of advantage to them, as the packages are often sent to countries where American goods are just being introduced. There are other reasons. The officers are allowed, by the information furnished on cans, to check that information with the actual value, taste and quality of the goods; and be able by their label and marks, to refer back to their origin. It is a protection to have definite marks. If there is any criticism of the goods the marks show their origin. The marks are an assistance to commissary sergeants in checking up the shipment when it is received.

There are also excellent reasons for care in the matter of weights. The army pays for its meats and meat products by the net pound. The inspector must use every care to see that nothing of what is ordinarily called tare, wrappings, cans, boxes and the like, is included in his final weights for net. However, he is required to determine the individual and total gross and net weights and cubic measure. He sees to these right conditions in preparation for transit as it is necessary for the Quartermaster's Department of the army, which has charge of transportation, to have this data as information in shipping either

by car or army transport vessel. The details of weights and measures of the consignment of meats must be had from him for the benefit of the clerical force of the commissary office. Determination of exact net weight must be had, as known to the inspector as representative of the commissary office and to a checker at the commissary depot, before vouchers can be made out for payment of the packer. The inspector in all this work is not only a protector of the health of the American soldier, but a guardian against intentional or unintentional defrauding of the United States treasury.

The situation in which the inspector for the War Department finds himself is not altogether an easy one. He is the business representative, as well as the scientific representative, of the commissary officer in the city in which he is stationed. He deals directly with the highest officials of the packing companies on all points of business connected with the fulfillment of the contracts. The complete responsibility is in the hands of the United States army officer of the Subsistence Department, and to him he looks for all orders. Yet the work, on the inspector's part, calls for business astuteness, equipoise and good sense.

V. THE PERSONAL SIDE.

Upon whom the efficiency of the inspection depends—The regulations for the inspection—The manner in which the work is conducted—The commissary officers in charge, their intelligence and character.

The inspection would be of little account, and would be of little force, if it were not for the United States Army officers who have it in charge. The efficiency of the service is due to the character of the officers who have charge of the work. The work is their work in its conception and in its conduct.

There are certain regulations under which the inspection is conducted. The work is done under the rules of a code of regulations issued in the form of a printed circular letter emanating from the Commissary General of Subsistence of the army, together with rulings printed in "Proposals for Army Supplies"

issued to those who bid to fill contracts. Too much cannot be said of the definiteness, simplicity, cogency and clearness of the printed requirements, which are binding alike to the contractors and to the inspectors, who see that no specifications are overlooked in the filling of the contracts.

The manner in which the work is conducted under orders from army officers is worthy of notice. The idea of discipline and high sense of duty, which prevails in all army work, and in all work with which the commissary officers have to do, prevails in all the business connected with the furnishing of subsistence supplies. The fidelity to trust, the painstaking of the army officers, is indeed admirable and inspiring. The work is done with that exactness, that obedience to orders, characteristic of military men. On the interpretation of points of order, there is no humming and hawing. If there is any fault in the carrying out of a contract, there can be no excuse.

The commissary officers in charge of the work are officers of the regular army who have been detailed from the line to the staff as commissaries in the Subsistence Department at Large for the purchase and distribution of subsistence stores. The gentlemen responsible for the proper appearance, quality, and shipping condition of the bulk of prepared meats for the army are: Lieut. Col. A. D. Kniskern, Deputy Commissary General, at Chicago, Major C. R. Krauthoff in San Francisco, Major C. P. Stivers in Kansas City, and Captain T. B. Hacker in Omaha.

All officers are detailed to the staff as commissaries because of peculiar fitness for the work. They bring into it that austerity to which they have been long accustomed in the line. They are under much of military rule, though they are detailed "at large" for the special purpose of furnishing subsistence supplies to the army in garrison and field. They have received a special course of instruction under commissaries doing duty in the purchasing of subsistence supplies before they are themselves, in their turn, assigned to that kind of duty. They have had long experience as commissary officers in garrison and field before their assignment to special duty as purchasing commis-

saries takes place. They are therefore particularly well versed in all the requirements for the army, and are, in large measure, experts in the judgment of foods, particularly the needs of the American soldier.

A good deal of the best work of the world is done quietly, without much talk, without theatricality. We are apt to think sometimes that that is of no importance which is not printed in italics or red ink. No worse mistake could be made. The supervision of the preparation of meats and meat food supplies for the army, under orders from its officers, belongs in that class of work which has hitherto never been mentioned in medical literature. Nevertheless it should be given a high place in the records of preventive medicine because of its protection of human life against ills possible through impure foods. The American people rightly have, for the officers of their army, respect and admiration. Never was their high character, never was their sense of duty more conspicuously exhibited than now, in the preparation of army food supplies.

PENNY WISE, POUND FOOLISH.—We heard on the street the other day of a man who claimed he was too poor to take his home paper, but all the same he read a notice in one of our county papers, telling how to prevent a horse from slobbering, and sent $1.50 for the receipt. When the $1.50 worth of information came it said: "Teach your horse how to spit."—*(Spencer, Oregon, Journal.)*

A NEW REMEDY FOR ECZEMA.—The Emergency Laboratories of New York City have been crowded with sufferers from eczema, who have called to procure a supply of poslam, the new drug which has created such a stir among the medical profession generally since its discovery by Dr. C. T. Cox, the eminent bacteriologist, a few months ago. A large number of cures have been reported. The Emergency Laboratories, located at 32 West 25th street, New York, by special arrangement with Dr. Cox, will continue to supply experimental treatments of poslam free of charge to every one who calls at the laboratories or writes to them for it. The itching is allayed with the first application, healing sets in immediately, and chronic cases are cured in two weeks.—*(Associated Press Dispatch, Nov. 7.)*

THE VALUE TO THE NATION OF VETERINARY SCHOOLS.

By Leonard Pearson, Philadelphia, Pa.

A paper read before the Pennsylvania State Veterinary Medical Association, March 7, 1906.

President Eloit has said: "It is a disgrace to organized education that any nation should refuse, as our own people are so apt to do, to learn from the experience of other nations; the schools must have failed to teach history as they should have done."

The American people have been so greatly favored by a virgin, fertile soil, by great natural stores of wealth, by kindly climates and by the absence of a hostile frontier that, as a nation, they have not yet been driven to a severe struggle for existence and to the development of habits and practices of economy, or to careful husbanding of their resources. The typical American method is that of the miner rather than that of the husbandman. The husbanding of one's estate—husbandry—is in direct contrast with the exhaustion of the rich stores of nature without replacement—mining.

Our great progress as a nation is largely due to the profits derived from turning into cash the bounteous products and stores of nature, the furs, timber, oil, coal, iron and other minerals and, *above all, the surplus plant food* accumulated and waiting in the soil for the pioneer farmer. These riches, some of which have been gathering thousands of years, and some of which were deposited ages ago, are rapidly being transmuted into fluid capital and some are already well-nigh exhausted. The fur bearing animals are almost gone, the end of our timber resources can be seen in the near distance, and the limits of the soil areas characterized by surplus fertility are contracting at a startling rate.

The gold dollars that nature scattered so bountifully and covered so lightly throughout the length and breadth of our country have nearly all been gathered. They were gathered

by the lumbermen who chopped down and marketed the noble forests of Maine, of Pennsylvania and of Michigan; they were garnered by the tobacco growers and the cotton planters who formerly tilled the virgin fields of the South, many of which are now half exhausted and some of which are barren; they were gathered by the early settlers on the rich and seemingly exhaustless lands of the middle West, where it was possible to grow wheat or corn on the same land year after year, without intermission, for a generation, but where it is now necessary to follow an appropriate rotation of crops and to have a care for the restoration of the elements of fertility; they were gathered by the cattlemen and sheepmen who owned the vast herds and flocks that formerly ranged over the unoccupied lands of the far West, great areas of which have so suffered from exhaustion from over-stocking that they are now practically useless, and the grasses of some districts are believed to be permanently destroyed. *This system of mining natural resources is very different from the art of the husbandman, who makes restoration, in the form of material or tillage, for all that he removes, and under whose skilful hand nature continues permanently to yield her fruits.*

All permanent civilization depends on the conserving work of the husbandman. This fact is gaining recognition in our youthful country. The barren, fire-swept, flood-breeding, drouth-encouraging mountain sides are gradually being reforested, the depleted lands of the East and South are being restored to fruitfulness under scientific and conservative systems of agriculture that have been worked out in the experiment stations and agricultural schools. The semi-arid cattle ranges of the West are being cut up into farms which will yield bountifully.

With all of this development, is it not strange that our country continues to tolerate a loss of from $200,000,000 to $250,000,000 each year from diseases of animals that ought to be prevented? *Why is this loss permitted to continue?* Why is this tremendous leak unchecked? *In the first place*, there has been in this country such an unparalleled amount of natural

wealth that, with all of our wastefulness, enough has remained to meet the requirements of our population, and so a continuing loss great enough to seriously incommode, if not to distress, one of the great powers of Europe, has been permitted to go on year after year without hindrance. *In the second place*, the loss has been so scattered that it has not often fallen with crushing force upon a single locality, although great numbers of individuals have been sadly injured. *Thirdly*, the veterinary profession has not been sufficiently insistent on the importance and advantages of its work, and so the public has not been strongly enough impressed by the importance of veterinary work to furnish, or to demand from the public treasury, adequate funds for its proper support and development.

Another reason for the tardiness of our development as a profession, and of our institutions, is that on account of our distant position with relation to the old centres of civilization, we have a natural barrier against infections from abroad that has protected us to a large extent from some of the more prominent and striking, the explosive, animal plagues of the old world. Indeed, cattle owners have generally failed to recognize the gravity of the dangers that have actually confronted them until the blow has fallen, as, for example, when contagious pleuro-pneumonia and foot-and-mouth disease have prevailed in this country. Livestock owners were so inclined to accept losses from diseases of animals as a matter of course that they did not organize and demand relief from this source of injury. After contagious pleuro-pneumonia had prevailed in this country for ten years, had been rather extensively distributed, threatening the cattle industry of the United States with the direst calamity, even with partial extermination, as had so recently before occurred in Australia, where it ruined cattle breeding, transforming cattlemen into shepherds; even then the cattlemen made no strong or organized demands for protection until the disease had extended to the West and had reached Chicago, the greatest of our cattle markets. Still the recommendations by veterinarians of the measures that finally prevailed and that

were so brilliantly successful, were, in many instances, opposed by the interests to be benefited and so sorely in need of help.

When foot-and-mouth disease appeared in New England a few years ago, the representatives of the cattle industry were more willing to heed the recommendations of veterinarians and the calamity was averted of loss of foreign trade in live animals and of incalculable damage to our domestic animals at home.

These are achievements that are not fully enough discussed and that are not sufficiently appreciated. *The saving resulting from the extermination of foot-and-mouth disease alone is great enough to build and endow a veterinary college in every state of the Union and to repay, manyfold, all of the funds that have been expended on the work of the Bureau of Animal Industry and the Livestock Sanitary Boards of the various states.*

In European countries, where an animal scourge, as rinderpest, occasionally swept across the land, destroying a large proportion of the horned cattle, or almost completelv exterminating them, and where other explosive plagues prevailed widely, there has always been both a keen realization of the destructiveness of infectious diseases of animals and appreciation of efforts directed toward the prevention of such diseases.

And so it was, that one of the earliest measures adopted by the governments of Europe for the relief of agriculture and for the improvement of animal husbandry consisted in the establishment of veterinary schools. *The veterinary schools antedate the agricultural schools* for the reason that the first step in the improvement of animals is to protect them from disease, and agriculture rests largely upon animal husbandry. Some years after schools and laboratories were organized for the development of knowledge concerning diseases of animals, and for its dissemination, agricultural schools came into being.

This country has been very tardy in its recognition of the importance of the veterinary sciences, being, in this respect, *more than eighty years behind Germany, France, and the lesser countries of continental Europe.* Perhaps a reason for the slow development of state veterinary schools, in spite of the great

need of the country for the work of such schools, may be found in the unprecedented development of schools of agriculture and of agricultural experiment stations. Institutions of these classes were organized in every state, and the impression seems to have prevailed that it would be possible for them to take care of the needs of the country with respect to veterinary development and teaching. This, however, has not been the case, and it has long been clearly evident that *veterinary teaching, if it is to amount to anything in a serious and definitely useful way, and if it is to be developed to a point at all compatible with the needs of the country, must have its own separate and specially equipped institutions.* The work of the agricultural colleges and experiment stations has developed so much faster than the income of these institutions that those responsible for their management are constantly appealing at Washington and at the various state capitals for increased revenue. Thus the veterinary sciences have remained in the background, undeveloped and unable to exert their beneficent influences for the protection and betterment of animal husbandry.

Quite recently a change of sentiment has become apparent and veterinary work is beginning to have public recognition. It is now time for veterinarians to make known publicly, generally and forcefully the advantages that will accrue to the state from the proper development of veterinary research, veterinary education and veterinary administration. The limited public veterinary work that has been authorized, has proved its value and serves as a strong argument for further development.

It is probable that in the more civilized countries, great outbreaks of rinderpest, foot-and-mouth disease, contagious pleuropneumonia, etc., etc., are as unlikely to occur as are great outbreaks of the plague or cholera under our modern conditions. New conditions develop or, at any rate, encourage new diseases. *The destructive infectious diseases of to-day are more chronic and more widely distributed than the great plagues of former times.* The diseases of to-day destroy more animals, but the victims are scattered. Instead of destroying half of the cattle within a

limited area, they may destroy 5 per cent. of the cattle in a district a hundred times as great, or, the victims may be gravely injured and rendered unprofitable but not killed. *Animal plagues in these days are not so explosive as they are erosive.* Tuberculosis, abortion, and calf cholera were never before so prevalent as they are to-day. On account of their insidious nature they do not cause the alarm, but they do cause as much loss as some of the more spectacular and rapidly spreading maladies. Besides these, there are the various infectious diseases of horses: glanders, infectious pneumonia, influenza, strangles, tetanus, purpura hæmorrhagica, also various forage poisonings, and osteoporosis. In addition, there are numerous infectious and parasitic diseases of other animals and there are important veterinary problems in connection with breeding and animal production, all of which require elucidation. *The veterinarian is not only a physician for animals—he is an* ANIMAL ENGINEER. Moreover, the work of the veterinarian is of great and increasing importance with relation to the supervision of the production of foods of animal origin.

I have referred only to such veterinary work as is of *immediate public importance*, but surely it is also of importance that owners of valuable animals may be able to obtain the services of skilled men to furnish advice as to the prevention of disease and to treat ailing animals, so that, so far as possible, their sufferings may be relieved and they may be restored to usefulness.

It is necessary only to turn to the experiences of other countries to learn that a large part of our great and continuing losses from animal diseases is avoidable, and is a result of neglect.

The veterinary development of Denmark furnishes a very instructive lesson. Denmark is a small, bleak country, and a generation ago it found itself stripped of its fairest province, impoverished by war and confronted by changed economic conditions that made it impossible for it to continue the kind of husbandry (grain production) that had formerly sustained it. The indom-

itable will and resourcefulness of the people brought about a complete change in the agricultural conditions, under which dairying became the chief industry. This brought into great prominence the importance of animal hygiene. The old veterinary school of Copenhagen, established in 1773, had long before laid the foundation for a substantial veterinary development. Through the influence of the men trained in this school, one infectious disease after another was exterminated or brought under control until, at this time, there is no other country in the world with such a large animal population, in proportion to its area, where the animals are as healthy, as productive and as profitable as in Denmark. The Danish work in the development of the means of control of tuberculosis, abortion, calf cholera and milk fever has brought to the veterinarians of that country world-wide fame. The present prosperity of the people of Denmark is due in a very large degree to the work of the veterinarians. *One discovery by a Danish veterinarian, a cure for milk fever, has already, in the course of five years, been the means of saving to owners of cows throughout the world a sum sufficient to equal all of the money that has been expended on the construction, equipment and maintenance of all the veterinary schools established since the first one, at Lyons, in 1762.*

Belgium is the most thickly populated country in Europe, but, notwithstanding this, it has an extensive and highly developed live-stock industry. In draft horse breeding, Belgium has taken particularly high rank, and the farms yield astonishing quantities of dairy products. This would not be possible if the health of the domestic animals were not carefully and successfully guarded. The quality of the service rendered by the veterinary profession of Belgium and the public appreciation that this work has received are shown by the fact that the veterinary school in Brussels, founded in 1832, is now being re-equipped with a group of nine school, laboratory and hospital buildings, beautifully placed on large, park-like grounds, at a cost of about 6,000,000 francs.

In Germany, there is a veterinary system that has been developing since 1778, when the first German veterinary school was established in Hanover. Other schools have been established until there are now six, all well equipped and adequately supported. The German organization for administering the veterinary laws is interesting because it shows the results of a natural development, in accordance with the needs of the situation; the development being guided by a well-trained profession. The central administration of veterinary laws in Prussia, for example, is in the branch of government presided over by the Minister of Agriculture. The Minister of Agriculture is advised in all technical veterinary subjects by a board of veterinarians. All rules and regulations for the control of diseases of animals and for the guidance of official veterinarians are made by this Board. The Board also subjects to a written, a practical and an oral examination all candidates for appointment to the positions of department or district veterinarian. In each local district there is an official veterinarian known as the *Kreistierarzt*, whose duty it is to exercise local supervision with regard to infectious diseases of animals, to advise and encourage breeders, to supervise horse-shoeing, to enforce quarantine laws, and, in general, to look out for and to improve the health, quality and usefulness of the domestic animals of the district. The Department Veterinarian has somewhat larger jurisdiction; his field includes many local districts. The department and district veterinarians are subject to regulations from the Minister of Agriculture and from the chief executive officers of the departments and districts.

The result of this arrangement has been to bring the whole of Germany under such veterinary supervision as to lead to the great restriction of infectious diseases and greatly to improve the live-stock industry. This benefit to the country is reflected in the adequate generous support of the veterinary schools, for it is clear to every one who has looked into the subject that the real value and the permanence of the system must depend on the schools.

It would not make the case stronger to go on and to pile up example upon example of the public advantages from veterinary work or to show that a country cannot reap these advantages without fostering the development of the veterinary sciences.

Surely, it should be possible for our country to learn this lesson from the experience of other countries. The leading facts are that the losses from preventable diseases of animals are great, and they are avoidable. Why continue to suffer them? Let us profit by the experience of others. Franklin said, "Experience keeps a dear school, but fools will learn in no other, and scarce in that." Let us not be fools. The tide appears to be turning in our favor. Let us take advantage of it, accelerate it and endeavor *by united effort* to hasten the day when the benefits that come from the development and the teaching of the veterinary sciences shall more fully contribute to the happiness and prosperity of our country. This can be done by making clear the necessity and the benefits of veterinary work—and this task rests upon us.

"WHY don't you get an automobile?" "Why, dear sir," was the answer, "I don't need it. I have a dog, three life insurance policies, and a boil. I have trouble enough."—(*Washington Star.*)

HAMBLETONIAN X.—Hambletonian X., the founder of the harness turn horse, served in the stud for twenty-four consecutive years, and out of a total of 1,930 mares received he got 1,333 foals; of these 40 became standard performers (2:30), 150 of his sons produced standard speed, and 118 of his daughters were also producers. The total number of standard performers credited to the old horse and his sons and daughters is 1,879. Beginning at the age of 2 years to do service in the stud, he was limited to four mares; at 4 years the number to be received was unlimited and he served 101 mares. His greatest number in one year was 217, when Hambletonian was 15 years old. This number receded until the horse's 22d year, when he was given a rest, as it was noticed that his powers of production were waning. At 23 he was again put in service, and continued until he was 26 years old. This was in 1875, and though he was mated with 24 mares the result of this mating was but two foals.

REPORT ON SURGERY.

By C. C. Lyford, M. D., D. V. S., Minneapolis, Minn.

Read before the Minnesota State Veterinary Medical Association, July 11, 1906.

Clinical surgery is, in my opinion, the most potent factor in the success of this Association, as well as that of the A.V. M. A.; and as the majority of our members have come to us with a limited experience as surgeons, it has been a source of great pleasure to notice the improvement, both in their willingness and ability to operate; and, that they come from all over the State to take part in these clinics, makes me feel sure that if this Association were asked to vote on what it considered the most *essential* part of our program, and the one that they expect the most practical good from, the majority would be unanimously in favor of *clinical surgery*—the Pennsylvania Association, notwithstanding.

There is a broad field for experimental surgery which needs our especial consideration, as there are many cases of deformity as well as abnormal and defective action which need to be corrected, and which by right should come under the supervision of our "veterinary colleges," more especially the Veterinary Department of our Experimental Stations, which not only have every advantage over private practitioners so far as opportunities are concerned, but also have an abundance of apparatus and help, if needed. So far we have looked in vain for help from these quarters, with the exception of perhaps the Cornell Veterinary Department, which has furnished us some very valuable and interesting articles and operations.

Some of the most useful operations have come to our profession from *non-professional* workers, such as castration of cryptorchids, having been perfected and made both surgical and practical by "Farmer Miles" of Illinois.

I have often been asked if it were advisable to operate on so-called "bog" or "blood spavins." Although favorable results have been obtained by opening them uuder certain conditions, still the danger of complications from lack of antiseptic sur-

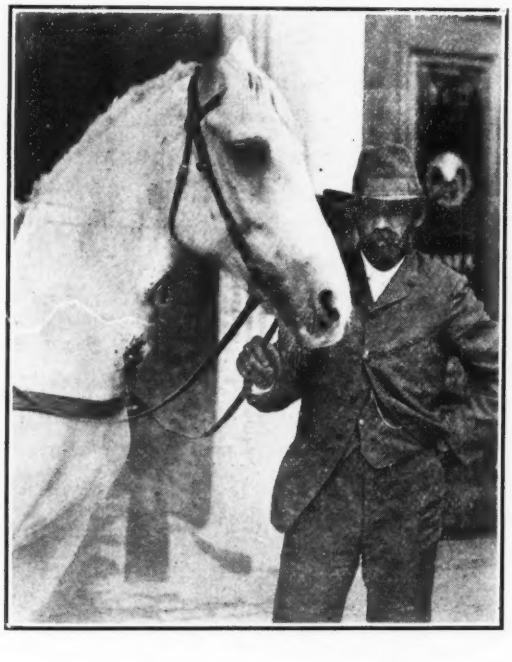
roundings would hardly warrant recommending it for general practice.

There is another and apparently very useful operation that comes with the commendation of Dr. Hughes, of the Chicago Veterinary College, which consists in ligation of vessels and nerve passing down the inner surface of the *hock.* This is not only an apparently very successful method of treating bursal enlargements of the hock, but is sufficiently safe to be recommended to our Eastern brothers, *who claim* to lack that "*rarified atmosphere*" "which *we* possess"—thus allowing more cases to get well, "in spite of *our treatment*" of bursal enlargements.

MISTAKES IN SURGERY.

We all make mistakes in surgery, and by reporting them as we meet them and by showing wherein the mistakes are fatal, should prove a source of benefit to the members of this Association, as well as the profession in general.

The accompanying photo, taken July 2, 1906, is that of a horse which had been operated on for tracheotomy about two



years previous, and, although this operation had proven fairly successful, the owner having used the horse for ordinary farm work during said period, notwithstanding the tube was inserted rather to the left side of the trachea, two or three of the cartilaginous rings having been cut through, and, as a very common sequence of this operation, a bony tumor formed at the right side of this opening, making it difficult to retain tracheotomy tube in original opening and to obviate this difficulty a second operation was performed by the same veterinarian, making the opening into trachea about eight inches below the original one, and at this time it was made a good deal to the right of the median line, opening into trachea being nearly one inch to the right of anterior median line, the cut being made through at least five of the cartilaginous rings, and as a consequence the tracheotomy tube would not stay in position, and as a result, the trachea collapsed at this portion, which almost closed the tube, especially so when the animal's head was kept in an elevated position. Even the act of eating so distressed him that he would often put his nose to the floor, which allowed the collapsed portion of trachea to open sufficiently to relieve his breathing. This was the condition in which I found the subject May 5, 1906, when I was called supposedly to operate on a case of roaring, and as I happened to have with me a piece of ordinary garden hose about 14 inches long, was able to relieve the animal by removing the tumor surrounding the original opening through which I passed the hose until it reached below the collapsed portion of the trachea. This immediately relieved the breathing. The tube was retained in position by fastening a cord to the upper end of the tube, which projected about four inches. The string was kept tied around the neck to prevent the tube from slipping down the trachea. By this means the patient did ordinary farm work for nearly two months, and was driven to my stable, a distance of nearly 30 miles, in four hours, June 30, 1906. The owner wished something done to avoid the necessity of keeping a rubber hose inside of the trachea.

I decided to try a jointed aluminum tube, but the only things I could get of the right size were napkin rings; so I drilled and wired them in three places, leaving a space of half an inch between to allow for motion and pliability. The most perplexing question was how to keep this aluminum tube in position, but decided to fasten it to an ordinary nickel-plated bridle rosette, which I fastened to one of the connecting links between the aluminum rings. I then sewed the opening so as to leave the rosette outside of the opening, until sufficiently healed to hold itself in position. The operation was performed July 1, 1906. A large tracheotomy tube was placed in the upper opening and the horse and owner started for home July 2, immediately after having their pictures taken, and with no signs of distress in either, as can be seen by the photo.

There is one other thing of which I wish to speak. I have met with it quite often in practice, and which seems to me a mistaken idea, and as the results are quite serious in some cases I should like to hear it discussed. This seems a sort of mania that some practitioners have of placing rubber bands on the ends of cows' teats to retain the air after having inflated the udder in cases of parturient apoplexy. Some cases have been months in recovering, and others made troublesome and hard milkers as the result of stricture in the ends of the teats.

(*The sequel to this story will appear in the January* REVIEW.)

VETERINARY DOCTORS all seem to be doing a good business whether located in the country or city. That is, the trained ones, in whom stock owners can place confidence. It is likely that no profession offers better chances for young men of scientific taste than veterinary science.—(*American Cultivator.*)

A CONTROVERSY has been going on in the New York *Herald*, Sunday edition, between local veterinarians as to the prevalence of the practice of giving motor stimulants to show horses to increase their animation and action, as well as depressants to control unruly animals. It is unfortunate that there is such difference of opinion as the controversy seems to indicate, since one veterinarian who claims great experience with show horses doesn't believe that drugs are given for such purposes.

AN OUTBREAK OF RINDERPEST IN THE PHILIPPINE ISLANDS.

By R. H. McMullen, D.V.S., Veterinarian, Bureau of Agriculture, Manila, P. I.

"*Special Orders, No. 53.*—Veterinarian R. H. McMullen will proceed by first available transportation to the province of Batangas, Luzon, to investigate and suppress an outbreak of rinderpest."

The above orders showed too plainly that the tranquility of the rinderpest situation had been rudely disturbed, and as the other members of the Veterinary Division were widely distributed throughout the Archipelago I was the only available one to be sent to the scene, which was about a twelve-hour trip by steamer from Manila.

Cholera being prevalent in Manila, a forty-eight hour quarantine was in effect; consequently, our boat anchored near Corregidor, and the monotony was relieved only by the excitement attending the attack of a member of the crew by that dread scourge of the Far East.

Upon arrival at the capital of the province of Batangas, I reported to the Provincial Governor, who was formerly an "insurrecto," and I quickly realized after a review of conditions that the rinderpest outbreak was general and that hasty action was imperative.

History of the Outbreak.—A shipment of 150 head of cattle from the island of Mindoro was received in the seaport town of Bauan, Batangas, in June. This town is a distributing centre; thus the cattle soon became scattered to various parts of the province, and infection followed in their wake. Towns in the Philippines are called pueblos, and their municipalities include barrios in their jurisdiction; these are similar to our wards. The barrios of one pueblo adjoin those of another, so that there is intermingling of cattle throughout a province, and infection spreads rapidly and completely.

Eleven towns and adjacent territory were reported infected, and they contained about 20,000 cattle and carabao. The seaport town had lost 2,000 animals, and the mortality in that

place was 90 per cent. of those attacked. The natives had resorted to tying palms and wire around the sick animals' necks; also bled from the ears and tail; placed salt in the mouth, and drenched with vinegar. These means failing, they threw up their hands, and called on the provincial authorities for aid. The reluctance of the natives to report the disease at the outset was in part due to the failure of the bile method of inoculation, which was tried by the military people several years previously. These adverse conditions confronted me, and it was also a hard task to overcome the natural prejudice and antagonism. Luckily I obtained the consent of a Filipino official to inoculate his herd, which was infected, and the results were gratifying. This news spread quickly, and in a short time a cry for our services came from all quarters.

Method of Combatting the Disease.—I wired to Manila for reinforcements, then organized inoculating parties, and systematized their work by concentrating the animals of the infected towns in districts convenient for inoculation. All animals were treated as exposed and were inoculated with 50 c.c. of serum, excepting those which showed marked clinical symptoms, and these received 100 c.c. to 150 c.c., according to their condition. Our success was instantaneous, and at the time of the writer's return to Manila to resume his duties there, five inoculating parties, under the supervision of a veterinarian, were in the field, and more to come. No further reports of disease were received from any district once visited by the inoculators. A vigorous quarantine was established.

Symptoms.—There is no necessity to dwell on the symptoms of rinderpest, as the readers of the REVIEW are familiar with them. A notable feature of this outbreak, however, was the appearance of the pustular form of the disease; about 5 per cent. of the animals presented for inoculation showing pustules in various stages. These animals, of course, were considered as immunes.

The investigation called for considerable "hiking," and the floor of a native shack served as a bed on several occasions. Some of my meals consisted of rice and dried fish.

MODERN VETERINARY METHODS.

By Walter J. Taylor, D. V. M., Ithaca, N. Y.

Note by the Editors of the Review.—Under the above heading there will appear in consecutive numbers of the Review a series of short articles on "Diagnosis," "Differential Diagnosis," "Immunity," "Protective Inoculations," etc. These are not intended to include any original matter, but simply a brief statement of important facts already determined. The advance in the science of veterinary medicine, especially in reference to methods of diagnosis, has been so rapid that unless one has access to the periodical literature of many tongues, it is difficult for the busy veterinarian to adequately appreciate the demands imposed upon him by the newer and more accurate methods which have been placed at his disposal by the ever advancing science of veterinary medicine. Therefore, it is the hope of the author and the editors that this department may prove of real service to those who wish to keep step with the leaders.

* * *

DIAGNOSIS.

The objects of veterinary medicine looked upon from a practical point of view are manyfold, but all resolve themselves into the single idea: that of restoring the impaired health of our domesticated animals and preventing the spread of disease among them. For this purpose, a knowledge of the normal structure and functions of the various organs is indispensable. This knowledge is the principal basis upon which a rational treatment and accurate prognosis are based.

Disease may be defined as a deviation from the normal. Diagnosis, then, consists in the ability to exercise our judgment and training in such a way as to be able to determine the seat and nature of that disease and in distinguishing it from other morbid processes. Surely, its importance to the practitioner cannot be overestimated, as it occupies a pivotal position between causes, nature, morbid phenomena and symptoms on the one hand, and prognosis, prevention and treatment on the other.

It has been said that "there is only one medical science and that is the veterinary medical science." From one view point,

this is true, as the veterinarian is absolutely unable to determine the subjective symptoms of his patient from the patient himself. On the other hand, this is compensated for to a large degree by the fact that we are able in all cases to make a complete objective examination. In this we have the advantage over the human physician, who is frequently denied this privilege, as well as being liable to be misled by the imagination, whim, shame or vanity of the patient.

SYMPTOMS.—A symptom is an appreciable evidence of disease. A symptom, however, may indicate illness without affording the means of diagnosis. Symptoms may, for general considerations, be divided under the following heads:

Constitutional Symptoms.—These are those which affect the whole animal system, such as a rise of body temperature.

Local Symptoms.—These are confined to a definite area and are manifested by swelling, tenderness, etc.

Objective Symptoms.—These are manifestations of disease recognized by the observer.

Subjective Symptoms.—These are abnormal conditions which are recognized only by the patient himself. To the veterinarian, as a rule, these become objective symptoms, inasmuch as a good diagnostician readily observes by the action of his patient what his feelings are. Thus one is led to infer pain from the fact that the patient winces on pressure, and dizziness may give rise to unsteady gait. Some speak of direct and indirect symptoms, but these are generally included under objective symptoms.

Thus far we have dealt with the general appearance and condition of the patient as we find him when called upon to attend to his sufferings. Naturally the next thing that presents itself is the anamnesis. In other words, what is the history of the case in question? Many times a veterinarian is misled in his diagnosis by his ignorance of preëxisting conditions or upon deliberate untruthfulness on the part of the attendant. It is perfectly right that we should acquaint ourselves with some things concerning the patient prior to the time the illness occurred. We may inquire into the nature of the food, sanitary surroundings, etc. Often, however, too much weight is placed upon the history of the case, resulting in a faulty diagnosis.

Comparative medicine has risen above the plane of theorization and has become a science. The recent developments along pathological and bacteriological lines must of necessity make the successful practitioner keep abreast of advanced methods. To-day we know the specific cause of many of our animal

diseases. We should, therefore, also know the means by which their presence can be detected and the diagnosis made as we know the histological structure of tumors and are thereby enabled to differentiate between them.

The veterinarian who makes a diagnosis of glanders or tuberculosis without applying the specific tests for their detection, simply because the animal has been exposed, is not living up to the standard of professional knowledge. It is just as wrong to say a horse is not suffering from glanders, without the application of mallein or the agglutination tests, as it is to say it has glanders and forthwith have the animal innocently destroyed.

If an animal be presented with a slight lameness and an examination be made of the affected limb, it is not always justifiable to pronounce ringbone from the fact that there is a slight bony prominence on the coronet bone. It may be the natural conformation of the bone in question. In what respect and to what degree does it differ from the other three similar bones of the other limbs? If it be a rear limb a careful examination of hock and stifle should be made; if a front limb, knee and shoulder should receive equally as careful attention.

When called upon to treat a case of apparently severe colic, it is well to defer a colic diagnosis. Might it not be impaction or volvulus? Truly, the symptoms are nearly identical, but the loss of a case of colic is not gratifying, while the loss of an animal from impaction or volvulus is not altogether unlikely.

Almost too much confidence is placed by some veterinarians in their ability to diagnose the nature of tumors. We say it is a sarcoma, carcinoma, epithelioma, etc., when as a matter of fact it is very hard to tell without a microscopical examination just what the nature of the growth may be.

The same way, in all cases where a shadow of a doubt may be entertained it is perfectly proper to withhold the diagnosis until a thorough examination has been made. A diagnosis deliberately made and the disease properly treated is infinitely more gratifying than a hasty diagnosis and improper treatment of the affection. We should guard against error, as a mistake in diagnosis often leads to the loss of a valued client.

Often a proper diagnosis is very simple. In a great many cases, on the other hand, it is very difficult. A great many of the animal diseases are similar in their manifestations. When these cases are encountered, with the specific tests now available, we always have the alternative of resorting to a differential diagnosis. This subject will be treated in a subsequent article.

Indexed.

PRACTICAL APPLICATION OF BOVOVACCINE.

In a report to the Grand Ducal State Administration, Neustrelitz, dated at Nuebrandenburg, Sept. 5, 1906, the Council of the Agricultural Main Society of the Grand Duchy Mecklenburg Strelitz (Count Schwerin-Goehreu, Chairman), the following statements are made with reference to Behring's Bovovaccine:

The Agricultural Main Society feels impelled to submit the report requested Aug. 1, 1906, of experiences made here, in practice, without discussing scientific controversies.

In practice, three points are of importance in the preventive vaccination of cattle:

(1) The harmlessness of the vaccine for the vaccinated animal.

(2) The curative and preventive effect of the vaccination.

(3) The dangerousness of the vaccine for man in the slaughtering of vaccinated animals.

Note 1.—In the course of three years, about 3,000 inoculations with Bovovaccine have been performed here under the control of the Agricultural Main Society. Diseases of the animals, in consequence of their inoculation with Bovovaccine, have never occurred.

Note 2.—The animals inoculated with Bovovaccine have proven to be immune against infection by tubercular stock. The animals, which, when calves, were inoculated with Bovovaccine twice, according to directions, were inoculated in the third year in many cases with the largest permissible dose of tuberculin, and have not shown any fever reaction. On basis of our experiences, we therefore consider it proven, that the immunity from bovovaccination lasts at least three years, and other experiences warrant us in the belief, that it will last still longer. A discontinuance of the immunity conferred by the vaccination has to our knowledge never been proven. The vaccination therefore seems to confer an unlimited immunity.

A curative effect of the bovovaccination could be proven in

many slaughtered animals, in which encapsulated tubercles were found. These animals had evidently been infected already before bovovaccination.

In a very few cases there were found in animals coming from highly tubercular herds no encapsulated tubercles. Evidently, these animals had been infected to a high degree before vaccination, since they reacted strongly to the bovovaccination, while calves coming from healthy herds never showed febrile reaction after bovovaccination.

In consequence it is our endeavor to vaccinate the calves at as early an age as possible, to prevent a possible infection by vaccination.

This endeavor is therefore contrary to the recommendations of the Government, and we ask to disregard the advice of the medical council, "to vaccinate animals not younger than three months." The council's advice to vaccinate the calves only at such an age is apparently based upon the experiences made with Tauruman*, to which we will refer in the course of this report.

Note 3.—Now, as regards the dangerousness of the vaccine itself, Bovovaccine contains only mitigated human tubercle bacilli, while Tauruman * contains such in their unmitigated state. Prof. von Behring has stated repeatedly, that he has in no manner and at no time succeeded in proving the tuberculosis virus to be alive, and causing disease of the organism of the bovovaccinated cattle. District Veterinarian Ebeling can confirm this opinion of the statement, that on the occasion of a bovovaccination he accidentally injected some Bovovaccine into his hand, and that this accident has had no deleterious consequences. On the other hand, according to Mr. Ebeling, a veterinarian who had a similar mishap with Tauruman became very sick.

On the basis of the experiences made in Marburg, it must

* Tauruman is a vaccine containing unmitigated tubercle bacilli, with which experiments have been made by the Government, the results of which, however, have not proved satisfactory.

be assumed that the slaughtering of bovovaccinated animals is not connected with danger of infection at any time. The Imperial Board of Health will institute further tests in this direction. Should the results of these tests, contrary to the expectations, cause a certain quarantine to be introduced for slaughtered bovovaccinated calves, it would, according to our opinion, be advisable to issue an order to the effect, that the owners of bovovaccinated cattle shall not be permitted to sell them before this time has elapsed.

If it is further ordered that calves receive numbered ear-marks when bovovaccination is performed, as they do in this locality, wherever vaccinations are made by the Agricultural Main Society, then the date of vaccination of each bovovaccinated calf to be slaughtered could easily be ascertained from the vaccination records of the owner.

To state the day of vaccination on the ear-mark itself, would decrease rapidity in marking. It should be avoided as much as possible, to complicate vaccination, since bovovaccination is the means by which our tuberculous herds can be healthy.

DR. W. B. MACK, N. Y. S. V. C., '04, has been appointed pathologist and bacteriologist to the University of Nevada. The many friends of Dr. Mack will rejoice to learn that he has so far recovered from his recent illness as to be able to accept this position. President Stubbs is to be congratulated on obtaining a man of Dr. Mack's calibre. This appointment makes the fifth from the alumni of the N. Y. S. V. C. to receive appointments in Western institutions.

PROF. LEONARD PEARSON, State Veterinarian of Pennsylvania, and Dean of the Veterinary Department of the University of Pennsylvania, has in press, to be published by the house of J. B. Lippincott Company, Philadelphia, a translation of the work by Prof. Jensen, of the Copenhagen Veterinary College, on "Milk Hygiene," including milk and dairy inspection. From the commanding prominence and importance of the subject, and the part which veterinarians should be prepared to take in the movement to improve the milk supply of cities all over the country, this work should be eagerly sought for as soon as available.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

CHONDROMA OF MEDIAN SEPTUM.*

By J. W. HAXBY, V. S., Villiscia, Iowa.

These cases were caused by injuries, two of them by halter pulling, one of them by a blow on the nose with a stick of wood, and the cause of the others not known. The symptoms are snoring while standing, and some exhibit the sound while walking, but when trotted usually no noise is heard from breathing.

This case, a fine Percheron gelding, the owner said was wind broken. Upon making inquiry found he had been a halter-puller. Examination revealed a small cartilage tumor in the septum nasi, about six inches up from the nostrils, nearly two and a half inches wide and protruding on either side of the septum one-half inch. This particular case did not yield to any treatment, so I decided to operate by removing the tumor. I first inserted a tracheotomy tube, then placed the horse on the table, forced the knife through the skin, and, by slipping the false nostril back of the blade, did no injury to it. Then by inserting the finger up the nostril the tumor could be outlined and knife guided so as not to remove more or leave any of the tumor intact. Then forced cotton or gauze back of the seat of the operation to fill the nasal cavities tightly, that no blood might escape into the larynx and gravitate down the trachea. I then packed the false nostril tightly to the nostrils and took a stitch in them to keep the packing in place. The animal was placed in a position where he could not rub his nose and dislodge the packing. This was removed at the end of twenty-four hours, for fear that death of the mucous membrane from pressure might result. The tracheotomy tube was removed in three days. Treatment consisted in washing the seat of operation with a zinc sulphate solution, two drams to the pint of warm water twice daily. The animal made a good recovery in about three weeks.

Another way I have operated gave equally good results, but is a little more difficult, and consists in removing the false nostril. The opening through the skin should be made somewhat higher up, as it is more difficult to excise that part where the

* Read before the Iowa Veterinary Association.

nasal peak and premaxilla join. This simply increases the nasal cavity around the tumor. This must be done without leaving any ragged edges or you will have to operate a second time. The nasal openings must be packed the same as in removing the tumor, only much farther back, to get behind the incisions. I would advise anyone who has not operated in this way to have their packing close by, as there will be blood, and plenty of it.

AZOTURIA (?) WITH A PECULIAR HISTORY.

By GEORGE W. STANBRIDGE, D. V. S., Winchendon, Mass.

I was called on the telephone Nov. 2d, at 3.30 in the morning, to the stables of Streator & Baily, to see a horse that was sick. I found a small brown horse down on the floor, where he had been drawn from his stall, he having been found cast. Animal 18 years or more of age. Pulse, very weak and uncountable, temperature, 105° F., breathing fast and short, covered with perspiration. This horse had been at work every day, and had worked all of that day, coming in late that night all right.

He would not try to get up. I gave him a hypodermic of strychnine sulph., one grain, put slings under him, got him on his feet, where he stayed for twenty minutes, when he wanted to lie down. Had a good bed made and let him down. Left a slight stimulant to be given him and went home. Saw him again three hours after. Temperature, 103° F. Looked better, but would not try to get up. Gave a one-half grain hypodermic of strychnine and a little whiskey. Put the slings under him; only helped him slightly, he very nearly getting up alone. Drank most a pail of water and ate a quart of oats; used all four legs while standing, with very little support from the slings. After half an hour he wanted to lie down; had the bed made up and let him down again.

The old harping: "If his water was drawn I know he would be all right." I drew the water, saying that I did not think it would do the horse any good, but that it might satisfy them on that point.

Now comes the surprise (at least to me): Black urine, so thick that it would hardly run, and dried quickly and like varnish on the hand.

Azoturia in a horse working every day and coming in from a day's work all right, with a high temperature, is something new to me.

The age of the animal and the fact that he had been cast some three hours, are my reasons for giving stimulants with a temperature so high. I thought that I had a case of exhaustion, caused from his efforts to release himself.

GOOD RESULTS FROM PASSIFLORA INCARNATA IN THE TREATMENT OF TETANUS.

By MARTIN R. STEFFEN, M.D.C., El Paso, Texas.

Our experience with this drug is limited to four cases, but from the good results achieved in each instance it is safe to assume that further trial will not be disappointing.

In the four cases spoken of above passiflora constituted the entire treatment from beginning to recovery (excepting, of course, the local application of antiseptics and the provision for drainage in those cases where the seat of infection could be located, and the usual precautions in regard to the elimination of exciting noises and excessive light, etc.) Two drams of the fluid extract are given every four hours until the abatement of prominent symptoms, after which it is to be given three times a day in the same doses. Recovery usually follows in from three to five weeks.

A very pleasant feature of this treatment is the fact that the terrible spasmodic contractions seem to be controlled from the start and do not occur during the entire attack.

We would be pleased to have other veterinarians report their results with this drug in the treatment of tetanus.

N. B.—Since writing the above I am informed on good authority that the fluid extract is not stable and that even better results may be expected from the use of the mother tincture of passiflora.

TWO CANINE CASES: PARALYSIS FROM CONSTIPATION—INTESTINAL OBSTRUCTION FROM A BALL OF HAIR.

By A. E. MERRY, D.V.M. (Assistant to DR. H. D. GILL), New York City.

Case No. I.—A water spaniel bitch was brought in, Saturday, September 22, unable to stand, being completely paralyzed in the hind parts. I examined her thoroughly and made the diagnosis of paralysis due to constipation. I began treating her with a physic, and applied electricity and astringent liniments to the parts. She made rapid improvement and is now able to stand, run around and is apparently well.

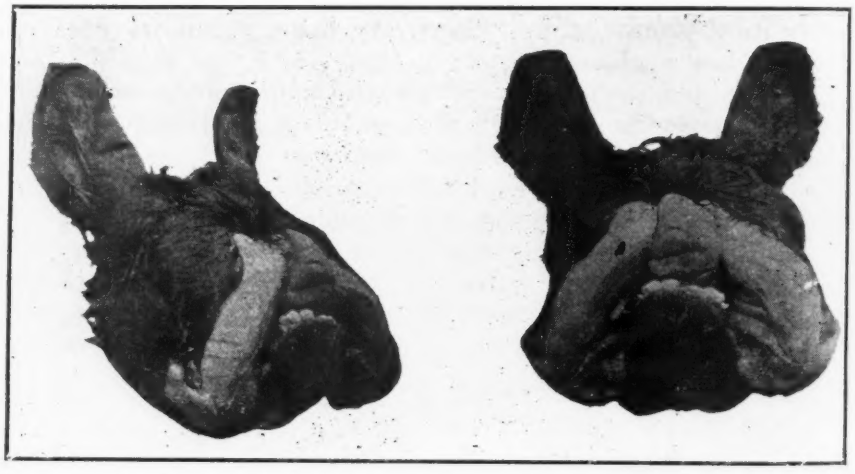
Case No. II.—An aged Newfoundland dog was brought into hospital Saturday night, September 29. He had no appetite,

vomited and had no passage of the bowels for several days. After an examination I diagnosed the case as complete stoppage of the bowels.

I began treating him by giving a physic. The next morning I found him dead, and held an autopsy, which revealed a large hair ball 1½ by 2½ inches, weighing six ounces, lodged in the intestine unable to pass the rectum. The stomach contained a very small quantity of mucus and hair and the intestines were greatly distended with gas.

ANOTHER BOVINE MONSTROSITY.

Wm. K. Breckenridge, D. V. M., Basil, Ohio, sends the accompanying photo showing front and side views of a monster calf head, which he recently met with in practice. In a letter he says: "I will not attempt to classify this freak, but would say that it falls under the *partial* clefts of the head. The tongue protrudes upwards more than it should, since the head was hardened in a position which caused the tongue to extend;



otherwise the head is about the same as when it was taken from the cow. The owner of the cow, Mr. Charles Giesy, said that the cow had a cough and was frequently bloated. When called I found both fore limbs presented with the head of the fœtus turned backwards. The fore limbs were both removed before the head could be brought into position for extraction. Even then I found extraction quite difficult, since the entire fœtus was very large. A 'Suplicator' was used by Mr. C. C. Lithaker in taking the photograph."

EXTRACTS FROM EXCHANGES.

ENGLISH REVIEW.

By Prof. A. Liautard, M. D., V. M.

Aneurism of the Posterior Aorta with Thrombosis of the External Iliac Artery [*E. W. Hoare, F. R. C. V. S.*].—This is the interesting case of a 19-year-old mare which presented lameness of one hind leg, appearing on work after a few days of rest with inability to stand on that leg, slight hardening of the gluteal muscles . . . in fact, the symptoms of azoturia, except the condition of the urine, which did not show any of the characteristics of that disease. The examination of the leg showed that it was deathly cold from the hock to the foot. Rectal examination revealed at the termination of the posterior aorta an enlargement, rather hard to the touch, and through each pulsation gave a peculiar thrill to the fingers. Pulsations of the off external iliac were very feeble; those of the near artery were normal. A diagnosis of thrombosis of the iliac artery was made and destruction was advised. But the owner did not consent to it for several days. The mare was finally chloroformed with 1 lb. 9 ozs. of fluid. At the post-mortem, "on removing the abdominal organs, a very large dark colored tumor was apparent on the right side of the posterior aorta, a short distance above its division. It was an enormous aneurism, with walls so thin that it was surprising how rupture did not occur during the casting and struggling of the animal. It contained a large amount of blood clot in various stages of organization, some portions being of quite recent origin. The right external iliac artery was completely plugged with a firm thrombus of a pale yellow color and the vessel was much smaller than normal and felt like a firm cord. The muscles of the off quarter were wasted and very pale."—*(Veterinary Record.)*

Multiple Adenocarcinoma in a Bull Dog [*Guy Sutton, M. R. C. V. S.*].—Well-bred bull bitch, fat, weighing 60 pounds, seven years old. She has had several attacks of lameness of the left hind leg and manifested pain on rotation of the stifle joint and also on manipulations of the skin over the course of the sciatic nerve. Treated for rheumatism, she recovered under appropriate treatment. Later she had vomiting and then

diarrhœa; her lameness returned and was more acute; her appetite was irregular; she lost flesh; temperature, 101°; pulse without its normal intermittency has a marked dicrotic thrill to the finger applied on the femoral artery. Dysentery set in; she became very thin and weak, and finally was put out of the way painlessly. At the post-mortem a very large tumor was found in the substance of the liver, accompanied with quite a number of smaller ones. These tumors were of a dirty white color, and when examined under the microscope proved to be adenocarcinomatous in nature.—(*Veterinary Journal.*)

RUPTURE OF THE SPLEEN CAUSED BY A KICK [*Capt. R. C. Cochrane, A. V. D.*].—Two horses disagreeing had to be separated, but not until they had kicked each other. One that had been quite injured was put in a box by itself, where he laid down and refused to get up or even to attempt to do so. Externally he showed a severe contused wound on the inside of the off tibia, with marks of kicks on the flank and near side of the abdomen. There was no indication of fracture. The temperature and respiration were normal. Later in the afternoon the pulse was weaker and the mucous membranes very pale. He got up, but soon laid down again. When up, whenever he moved, he seemed giddy and not to be fully conscious of what was going on around him. The next morning he was in about the same condition and died. He ate nothing all the time he was ailing. At the post-mortem the abdominal cavity was found full of blood, the mesentery was discolored around the mesenteric vessels, and the spleen, weighing 8 pounds and 8 ounces, was ruptured on its internal face, there being two distinct rents, one smaller (four inches in length), and the other larger, which was V shaped and measured ten inches. The stomach was full of food and larger than normal.—(*Veterinary Journal.*)

RUPTURE OF THE AXILLARY VEIN [*V. S.*].—A gray mare, aged 12 years, has been bought recently. She is a little nervous and at times unwilling to work. One day, while in double harness, she travels seven or eight miles, at a steady trot, when suddenly she lags in her work, tries to rest on the pole or against her mate. The near fore leg has a diffuse swelling in front of the muscles of the arm. The leg is trembling and the animal cannot rest on it. Taken out of harness, she lays down after a few minutes, and twenty minutes after she dies. At the post-mortem, an enormous mass of clotted blood is found in the axillary space, between the internal face of the shoulder and

the external face of the lateral thoracic wall. The surrounding muscles, the subcutaneous cellular tissue of the anterior face and of the external side of the arm also contain extravasated blood. The dissection of the large bloodvessels, made to find the cause of this fatal hæmorrhage, revealed a rupture of the axillary vein, whose walls appear to be thinner than normal.—*(Veterinary Record.)*

EXCISION OF THE EYE-BALL AND SUBSTITUTION OF A GLASS EYE IN A DOG [*Ernest Child, M. R. C. V. S.*].—The subject was a fox terrier, seven years old, which received a very severe scratch on the right eye and for which no professional care had been demanded. The eye had assumed a very ugly appearance. It was swollen, protruding and abundant discharge ran over the cheek. The cornea was torn; it had lost its transparency and of course sight was gone. The owner desired to have the eye removed. The animal was chloroformed and the eye removed by careful dissection without much hæmorrhage. The orbital gland and the membrana nictitans were left intact. No special care was required, except cleanliness and antiseptic washing. There wasmuch soreness for a few days after the operation, but as soon as that had subsided a human artificial eye was put in place. The dog objected to it and rubbed it out as if it hurt him. This was done for several days and finally a solid artificial eye was resorted to. This proved a perfect success. The dog got used to wearing it at once and now it looks quite natural and no doubt the animal is much improved in appearance. Such a result is an inducement for others in similar cases.—*(Veterinary Journal.)*

AN OVERSIGHT IN DIAGNOSIS [*Young Practitioner*].—Bought recently at auction, a pony mare was taken home and put to work. She ate and worked well. After two days she was taken with colic, refused her food and the author was called to see her, as the warranty was to expire. The temperature was elevated 103°, but no satisfactory diagnosis made. Only one important symptom was recorded, but overlooked, namely: the animal had passed but little manure since she had been bought. She was returned after a laxative had been prescribed. The owner, however, liked her so much that he decided to keep her. She went on doing well, feeding and working to his satisfaction for a while. Then she was again taken ill with constipation. The temperature raised again, but there were only very slight colics. Oil, laxatives and stimulants were prescribed, but after an illness of four days she died. The

post-mortem revealed a large abscess in the abdomen, in the muscular tissue of the small colon, about one foot from the rectum. The walls were thick, fibrous and contained thick pus. It was as big as an orange, closing the lumen of the intestine. The author acknowledges his oversight in not making rectal examination, which, no doubt, would have permitted the discovery of the tumor.—*(Veterinary Record.)*

THORACIC WOUND—RECOVERY [*A. Maynard, M. R. C. V. S.*].—Twenty months old, a heifer, four months in calf, got hurt in rushing out through a gateway, and an iron bolt pierced her chest half way in the middle. The wound was a perpendicular one, measuring five inches in length, running into the chest. Small pieces of bone have been taken off, as there are fractures of the 9th and 10th ribs. The treatment consisted in enlarging the wound so as to remove about all the pieces of broken ribs. The lungs being uninjured, the visceral pleura was washed with antiseptic solution, with the hand and arm introduced into the cavity; tincture of iodine was injected into the thorax, the external parts were disinfected, the wound stitched, and hot bran and vinegar poultice, in clean linen bags, applied over the chest. Laxatives were administered and astringent lotions applied during the treatment. The animal was seen several times during her illness. She did well; her temperature never went above 100.75°, the appetite remaining good all the time. The stitches were removed after a week and simple dressing applied as there was but little suppuration, and this subsided shortly after. In due time the cow delivered of a sound and healthy calf.—*(Veterinary Journal.)*

A CANINE CASE [*V. S.*].—The subject of this case is a fox terrier, which, chasing a cat, fell into a narrow area, six or seven feet deep and was picked up unconscious. The pulse was good, there was no fracture; the dog was as if coming out of a chloroformization. He was left alone to allow him to recover, which he did after three hours. At that time he was perfectly conscious, attempting to walk, but unable to do so. The neck was turned slightly towards the left side, and the left fore and hind limbs, though not completely paralyzed, showed considerable loss of power and coördination. When placed on his feet the animal would either stand rather tremulously for a few seconds and then fall to the left, or, more frequently, would attempt to walk and after one or two blundering steps to the left, fall on that side. The muscles of the head and of the face were unaffected. The dog ate and drank with ease when lying

down. The prognosis was rather unfavorable. The treatment consisted in small doses of purgatives, as the dog was subject to constipation. Very little change was observed the two first days. But on the third day, there was a marked improvement. On the fourth, the purgative was stopped and alteratives in the shape of iodide of potash was given. The dog could then show less tendency to go to the left, he could cross the room without falling. At the end of the twelfth day he could walk comparatively well. A tonic of quinine completed the treatment, the recovery being perfect a week after.—*(Veterinary Journal.)*

GERMAN REVIEW.

By J. P. O'Leary, V. M. D., Bureau of Animal Industry, Buffalo, N. Y.

Reports from the 8th International Veterinary Congress:—Protozoa as the Cause of Disease in Animals [*Laveran and Vallée*].—The pathogenic protozoa affecting animals can be divided into three groups: Sporozoa, piroplasma and trypanosoma. The rôle of the sporozoa in veterinary pathology has hitherto been limited (coccidosis of rabbits, young cattle and birds, sarcosporidosis of sheep, cattle and swine). On the other hand, the piroplasma and trypanosoma cause epidemics among the domesticated animals and which on account of frequent and fatal results, deserve special attention. (1) Piroplasmosis:—Under this name we refer to a whole series of infections, observed in the large domesticated animals and which are caused by the parasites vegetating in the blood corpuscles; they belong to the group of the piroplasma. Piroplasmosis occur in sheep, horses and dogs. The writer gives accurate data concerning the geographical distribution of the contagion, the symptoms, the anatomical findings, the therapy and prophylaxis. (2) Trypanosomiasis:—At present we are able to recognize the following separate forms of trypanosomiasis: Surra, nagana (tsetse disease), trypanosomiasis of the horse, galziekte, mal de caderas, dourine *(beschälseuche)*. Among the pathogenic trypanosomes, from a morphological standpoint, there are individual cases well characterized (galziekte, caderas, trypanosomiasis of the horse in Gambien. As for the others, however, there exists a peculiar similarity, that their identity is very difficult to establish. The intensity

of their pathogenic action for the different species of animals furnish the most important features. With the following process several species of trypanosoma may be differentiated from one another. By investigating, in the case of two closely related trypanosoma diseases, whether such animals which are actively immune against one of these diseases, show themselves susceptible or resistant to another. Cattle affected with trypanosomiasis are not always emaciated. With horses the symptoms in general are characteristic; beside fever, emaciation, anæmia, there are also remarked œdematous swellings, exanthema, visual disturbance and paraplegia; the latter symptoms are present, however, only at the final stage of the disease. Apart from dourine, which is easily diagnosed (etiological conditions, local exanthema of the genital organs, finally paraplegia), the symptoms in the remaining cases of trypanosomiasis rarely permit the presence of this disease. For the establishment of an accurate diagnosis, the presence of the trypanosoma is essential. It is also very important that the veterinarian should be an expert in the search of this parasite. The discovery of the trypanosoma is not difficult, if present in the blood in large numbers; on the contrary, it is difficult when they are few. This is generally the case with cattle affected with trypanosomiasis and horses affected with dourine. In the latter, the trypanosoma are present in greater numbers in the œdematous lesions than in the blood. It is often necessary to use an experimental animal to prove the presence of the trypanosoma. The spread of the nagana disease, is brought about by means of the tsetse fly, chiefly, however, by the *Glossina morsitans;* the surra disease is distributed by means of the different species of stomoxys; the galziekte, through the medium of the hippobosci. The stinging fly also plays a great rôle in the spread of the disease (trypanosomiasis). The tsetse fly infects, when it sucks the blood of the wild animals (buffalo, antelope), which is affected with the latent form of the nagana. The manner of the dissemination of mal de caderas is not yet sufficiently well known. Dourine is distributed by means of coition. Dogs infect themselves with nagana, surra and caderas, by eating infected cadavers while still warm; the infection, however, only takes place through wounds or erosions of the nasal or oral mucous membranes. The combined treatment with arsenious acid and trypan red proved effective in many cases of trypanosomiasis; still this treatment is impracticable with horses, and is inapplicable in the case of animals for slaughter. It is

remarkable that if any one animal is cured of the disease by this method of treatment, the animal does not possess immunity for the same disease. All immunizing experiments which were hitherto conducted, proved negative. The dangerousness of trypanosomiasis and the unsuccessful therapeutic treatment of the same, make the prophylactic measures so much the more stringent as this can prevent epidemics of the disease. The prophylactic regulations adapt themselves necessarily according to the manner of the dissemination of the disease and also whether in an infected country or a healthy neighborhood.

THE SIGNIFICANCE OF THE PROTOZOA IN THE DISEASES OF ANIMALS [*Motas, Bucharest*].—The diseases caused by the amœba (amœbiasis) are yet very little studied. From our standpoint they are of no special significance. However, the relation of these parasites to those diseases in which they occur are still unknown. The trypanosoma are flagellate animals. Their pathological importance is far greater than that of the amœba. The author describes the trypanosoma of surra and nagana, and portrays those African diseases. R. Koch, Ziemann and Schilling (mal de Toga), Cazalbou (ubori), Chamrat, Rennes and Szewzyck, Ed. and Et. Sergent (El Debab), Dutton and Tood have described similar African diseases, as also that of congenital paralysis and those well known diseases named mal de caderas, mal de somedang and galziekte (*Trypanosoma Theileri*). The above-mentioned authors have transmitted the parasites, partly through virulent blood injected into healthy animals, and in part through the virus by means of the insects which are the natural disseminators of the disease and verified their experiments. The coccidia cause the well-known disease, which is known as coccidiosis. The rôle which many of the latter parasites play incidentally in the causation of those diseases in which they are found has not yet been experimentally proven. Their constant presence in the affected animals is a proof, however, that between their occurrence in the animal economy and the disease, a certain connection must be present. Under the designation piroplasma, these well-known protozoa are the cause of piroplasmosis. Their significance has been completely established by more recent investigations. The disease caused by these parasites has been experimentally brought to light through inoculations made with the virulent blood or through the ticks which are the means of natural infection, the distributors of these blood parasites. The author mentions in this connection the piroplasmosis of cattle, sheep,

dogs, horses, asses. Nosema Bombycis, it is remarkable, in so far as it possesses a great national economic value. The sarcospirodia are not yet sufficiently studied. The pathological lesions lead to the designation of psorospermiosis. Very often those parasites are found in healthy cattle. The manner of their dissemination is yet unknown. In conclusion, the writer mentions the well-known species under the name of Sarcocystis Mescheriana, Bertrami, Tenella, and Blanchardi.

TROPICAL DISEASES OF THE DOMESTICATED ANIMALS [*Theiler, Pretoria*].—T. reports the diseases among the domesticated animals in the exotic warm regions, which he divides into three groups: (1) Diseases caused by vegetable organisms; (2) diseases caused by ultra visible organisms; (3) diseases caused by animal parasites. Infectious pneumonia of the goat belongs to the first group; this disease was brought into Cape Colony by imported Angora goats and is designated under the name pasteurellosis (hæmorrhagic septicæmia) of cattle, also anthrax, malignant œdema, bursattee, epizoötic lymphangitis, farcin de boeuf. From the group of the ultra visible organisms, we might mention foot-and-mouth disease and rabies, rinderpest and contagious pleuro-pneumonia, horse sickness and catarrhal fever of the sheep, finally the heartwater (*herzwasser*) of cattle, sheep and goats. The two latter diseases were accurately described by Theiler. The third group include the diseases caused by the protozoa, which with few exceptions, the infection can be traced back to the secondary hosts, ticks and insects. To this category also belong the Texas fever or red water, the coast fever, the malaria of the horse and dog. The piroplasma may be divided into two groups, which are sharply defined. One group has for its type the *Piroplasma bigeminum*, the Texas fever of cattle. The other group of the piroplasma is represented by the African coast fever. It is due to a small bacillus-like piroplasm. Further we include among the diseases caused by the protozoa trypanosomiasis, nagana, surra, mal de caderas, the Senegambia horse sickness and the South African cattle disease. Theiler concludes his report with the following sentences: We may establish as a general law, that in consequence of the exploration of tropical countries through the white man, that animal diseases both known and unknown will increase. At present we stand powerless to cope with the innumerable diseases of those climates. It is therefore extremely difficult to establish leading principles, which the sanitary police of the tropical countries could adopt as a line of conduct.

As a consequence, especially in South Africa, the experiences gained appear obligatory, however, for colonizing the leading states, for to promote the study of animal diseases of the native and imported animals; for it is always in the strict sense of the word the farmer who is called upon to open the civilization of a new country. Veterinary science was treated at most only in a step-motherly fashion; yes, even despicably treated. It, however, alone is called upon to open the way upon which successful stock-raising will be possible in the warm climates. The veterinarian with a bacteriological training belongs to the first pioneers in the exploration of new countries, as experience in South Africa has proven that a scientific veterinarian can render valuable service at all times.—(*Deutsche Tierärztliche Wochenschrift.*)

A RUSSIAN PHYSICIAN has discovered that warts can be removed by simply concentrating upon them the rays of the sun with a convex lens.

THE SOBER SECOND THOUGHT ON THE MEAT INDUSTRY.—There have been many indications of late that our English friends are beginning to realize that their horror at the revelations concerning the Chicago meat industry might well be tempered with reflection on their own methods. Sir Frederick Treves is one of those who have given voice to such a feeling, and at the recent opening of the winter session of the Royal Veterinary College Professor H. A. Woodruff delivered an address in which, according to the *British Medical Journal* for October 6, he said: "It was remarkable that the man in the street, who held up his hands in pious horror at Chicago, appeared utterly unconscious that in this country [England], excepting a few enlightened cities and towns, there was no regular system of meat inspection at all." Veterinary surgeons, Professor Woodruff added, knew very well that carcasses of animals affected with tuberculous disease, anthrax, pyæmia, trichinæ, cysticerci, malignant tumors, and febrile deseases, or those of immature or unborn calves or of animals hurriedly killed to prevent their dying of disease, were dressed and exposed for sale with impunity. England of course is not the only country in which such practices go on; it is not to be doubted that they are rife in our own country at least. It is not the great packing houses alone that should be watched; we ought to have efficient inspection everywhere.—*(New York and Philadelphia Medical Journal.)*

ARMY VETERINARY DEPARTMENT.

VIEWS OF A VETERAN ARMY "VET" ON THE ARMY BILL.

FORT D. A. RUSSELL, WYO., Nov. 12, 1906.

Editors American Veterinary Review:

DEAR SIRS:—In answer to Dr. Jewell's letter in last month's REVIEW, I would like to state my views. In regard to the Army Veterinary Bill now pending, Dr. Jewell says that in its present form it will not please all of us. I grant that; it will not. The Doctor is probably not aware that it took pretty nearly twenty years to place the veterinarians of the Army where they are to-day. I am writing from nearly twenty years experience in the Army, and I come pretty near knowing what I am talking about. I have no doubt that one of Dr. Jewell's objections to the bill is that the General Staff has not advocated a commission for the veterinarians, but that will come, Doctor, but it will take a little time. Every little helps, Doctor. We of the old Army (I mean before the Spanish war) worked hard, financially and socially, to better our condition, and, finally, after a good many years of waiting, we were rewarded by getting two grades—one with the pay of a second lieutenant mounted and one with the pay of seventy-five dollars a month with rations and a clothing allowance, which to those holding the junior position was a great thing. Shortly after that our present Secretary of State, then Secretary of War, through his endeavors got us the position with the allowances which we now get.

It took a time, Doctor, but "we got there just the same." So it will be in the future. The War Department will look out for us. Uncle Sam is all right, only give him time. In the old Army things were not so rosy or comfortable as they are to-day. We had no gold medal cots, mattresses and tents in the good old days, no Pullman cars to travel in to an Indian campaign, but "boots and saddles" any time during the night, ten days rations in your saddle pockets. "Now let me see you smile, Doctor"; good times are coming. Of course, it seems an injustice that a portion of us must take an examination, but I think that if the Doctor would think of the hard times the older "vets" in the Army had that he would give us a show. We were stationed on the frontier, away from towns of any kind, with no facilities for brushing up professionally. I think we have earned going in without any effort. We stayed with the

old Army and I can tell you, Doctor, that times were pretty hard at times—a saddle for a pillow and the heavens for a blanket. I agree with the Doctor that it is an injustice that there is no clause for physical disability in the line of duty.

Now, Mr. Editor, I have just given my views, as I think every one of the older men would give them.

Very respectfully, FRED. FOSTER,
Veterinarian Arty. Corps.

* * *

PERSONAL.

WALTER FRASER, veterinarian 13th Cavalry, Fort Meyer, Va., has been ordered by the War Department to the Liverpool (England) University for the purpose of taking the course in tropical diseases of animals. The doctor will remain there during November and December.

DOG AND HORSE MEAT IN GREATER DEMAND IN GERMANY.—*Berlin, Oct. 24.*—The *Statistical Correspondence Magazine*, analyzing the official returns of the Prussian slaughter-houses for 1905, finds the slaughtering of dogs for food increased 33 per cent. over 1904, and that of horses 19 per cent., the total number of dogs eaten in 1905 being 1,568, and horses 81,312.

THE LONDON "VETERINARY JOURNAL" for October contains a frontispiece photo-engraving and a brief biographical sketch of its new American editor, Dr. W. L. Williams, but without a contribution from his pen. The *Journal* has added yet another editor, this time from Ireland, in the person of George Henry Wooldridge, F. R. C. V. S., professor of veterinary medicine in the Royal Veterinary College of Dublin.

SAND IN CÆCUM OF MULE.—Lieut. Burridge, British Army Veterinary Corps, South Africa, reports in the October *Veterinary Journal* the case of an eight-year-old mare mule, which died from the third attack of colic. On opening the abdomen the stomach was found distended to three or four times its normal size from ingested fluid, while the mucosa was quite highly inflamed, as was also that of the small intestines. The cæcum was impacted for nearly its entire length with a mass of sand, weighing 36 pounds. It was black and quite pure, there being no food mixed with it. The mucous lining was inflamed in patches. The animal was manger fed, with constant supply of rock salt. While under treatment no sand was passed with the fæces.

BIBLIOGRAPHY

THE EXAMINATION OF THE URINE OF THE HORSE AND MAN. By Pierre A. Fish, D Sc., D.V. M., Professor of Veterinary Physiology and Pharmacology, New York State Veterinary College, Cornell University. Published by Taylor and Carpenter, Ithaca, N. Y., 1906. Pp. 69. $1.50.

The busy practitioner is always looking about for means to relieve him of the anxiety attendant upon the difficulty of diagnosing obscure diseases in his medical cases. This is the reason for the avidity with which he has seized upon recent knowledge of the Negri bodies for the diagnosis of rabies, and the agglutination method for the diagnosis of glanders. In human medicine urine analysis has long been employed in diagnosis and prognosis of difficult cases, particularly abnormalities of the kidneys and liver, and for discovering the metabolic condition of the body. Dr. Fish, in our profession in America, is a recognized leader in the application of methods of chemical and microscopic analysis to the urine of the domesticated animals. All of us are apt to be puzzle-headed in such maladies as azoturia, where the kidneys are probably the chief seat of disease. Urine analysis solves many puzzles, unravels many skeins in difficult cases; particularly in nephritic and hepatic ailments. There is no reason why, with such a book as this of Dr. Fish's in hand, with a few reagents, and some of the simple paraphernalia of the laboratory, excellent work could not be done in the analysis of urine in private hospitals. Many practitioners could install such a laboratory to their gain.

The author evidently believes in cogency and point, rather than mazes of words, in book-making; so, in his ten short chapters, has included every method which modern practice has proven to be valuable. The work has many illustrations displaying findings under the microscope in pathologic conditions of the urine, accounts of the few instruments necessary, together with standard forms used in the analysis of urine of the horse and man. In addition, we should say the book is bound in white oil-cloth boards, making it serviceable for rough every-day usage. (D. A. H.)

THE article on "The Meat Inspection Movement and After," which Dr. D. Arthur Hughes contributed to the October REVIEW, also appeared in the *New York and Philadelphia Medical Journal* for Oct. 25.

CORRESPONDENCE.

VETERINARY OPERATING TABLES—A REPLY TO SOME POINTS IN DR. WILLIAMS' ARTICLE.

NEW HAVEN, CONN., November 14, 1906.

Editors American Veterinary Review:

DEAR SIRS:—On page 931 of the November REVIEW Dr. Williams says: "It seems to us from observations made that this apparatus known as the revolving stocks possesses this quality [safety of operator] in the least degree of any of the three types mentioned." He states also that in securing the horse in the apparatus the operator seems to be more exposed to kicks, strikes, and treads than applies in any of the other three types of table. He further says: "Once the animal is secured the operator is safe with any type of table, although with the Vinsot apparatus, as shown in Fig. 5, when it is desired to operate on legs or abdomen he must be completely surrounded by the horse and apparatus combined, so that if a foot should become accidentally loose the operator is hemmed in in such a way as to invite serious injury. He must also stoop to pass under the chain and bar in passing to and from the operative position."

We wish to explain this fully so that there will be no misunderstanding in the matter, for the table known as the Humane operating table (which is referred to by Dr. Williams as a modification of the Vinsot table) is supplied with two six-feet auxiliary attachments which are adjustable and removable. When the table is to be used for the shoe-boil operation, hernias of any type, operations on the scrotum, laparotomy, cryptorchid castration, etc., there are two lock pins which can be easily taken out, *completely removing one side of the table.* The patient is then walked up to the table as to the side of any other table, and is secured to each of the two uprights, which have removable padding.

For cryptorchid operation the sling may be placed in the usual manner and the chain which holds the hopples is left loose, hopples being placed on patient before he is taken to the table. The chain can be readily passed through the rings in the hopples and attached to the front end of the table. The sling can be quickly placed on the animal's body and hooked to the raising device. If it be an unbroken and wild animal, the

hood-halter is usually placed on the animal and the halter staff used to guide the horse to the table. If the patient be a wild and ugly unbroken colt, the chains can be loosened to their full extent, which allows the animal to be fastened to the two chains and sling while standing outside of table six or eight feet, one side of the table having been previously removed. This permits two attendants to handle such an animal more readily and more safely with this table than with stationary tables.

After the chain has been placed through the rings in the hopples, the sling having been hooked and locked, the raising device crank may be slightly turned by one assistant. As soon as the animal begins to bound, as is often the case, the raising-crank device can be turned more rapidly, which soon pulls the animal up to the side of the machine and raises him from his feet. The crank which tightens the hopple chain can be rapidly taken in, which tightly secures the feet.

Two slipper-noose ropes attached to each ankle of the horse are then used to quickly lash the fore legs to the front auxiliary attachment, and the same kind of ropes may be used to fasten the hind legs to the back auxiliary attachment. The animal may then be turned to the left or right, as has been previously decided by the operator. The worm-gear is then employed to turn the animal over, and the chain is detached from the hopples; the two pins or the two nuts are removed from the bar in the lower part of machine, which allows the rod to be pulled out. The surgeon is then free to walk up to the body of his patient without being hemmed in by the bar and chain.

A fifth noose-rope is fastened to the upper hind leg of the animal. This can be attached to a ring in the ceiling, or by placing the upper bar in the table without the body-rest, spreading the hind legs of the animal. He then has free access to the selected operative field, permitting him to stand at the back of the patient, or to walk into the space between the front and rear legs, there being no part of the table which in any way interferes with his operation; and with two or three assistants, if required.

After the operation has been performed, the leg is again lashed back to the auxiliary attachment. If chloroform has been administered, the patient may be allowed to lie on the table for fifteen or twenty minutes, or until recovered from the anæsthetic. The worm-gear is then turned, which places the horse into the standing position, and released. Should the animal be slow in recovering from the anæsthetic the sling may

be left so that it will support him until he regains consciousness, when the hopple chain may be unlocked and the chain slipped out of the hopples. The sling is unlocked from the back of the animal and allowed to slip off. The head is unfastened, the padded halter removed, and the horse led to any stall or place designated.

The table may be used in like manner for shoe-boil operations, amputation of the penis, operations on scrotal hernia, scirrhous cords, or any operation about the scrotal region. For umbilical hernia or laparotomy the operator simply passes four loops of strong rope about each quarter of the body, allowing them to come at the top of the hips and withers, where they are tied to the hooks attached to the raising device, the sling not being used in these cases. The feet are made secure by the hopples on the chain, as previously described, and are then attached to the two auxiliary attachments, the chain and rod being again removed, after the animal has been turned over, as already described.

If it be a foot operation, such as resection of the lateral cartilages, the rod is placed directly under the chain and locked. After the horse has been raised and turned partly over in the usual manner, the operator places the cranks used to raise the horse on the raising device, and lowers the patient six inches, which takes about five seconds. He then turns the patient to any desired angle, securing foot to be operated on tightly to the rod and chain with a piece of webbing or rope, lashing the leg above the ankle to the rod and chain. After the elastic ligature has been placed in position the leg is relashed to the chain and rod very firmly with another figure-eight inch webbing, so that it is firm and tight. If properly secured, there is no possible chance for the patient to loosen his foot. The other feet may be pushed along the chain and also tied to the rod and chain, so that there is no possibility for the operator to be struck with them, as the rod, if placed in the centre of the machine, comes between the patient's legs. The foot which is being operated on projects over the rod and chain, which allows the surgeon to stand outside the machine, disinfect and cleanse parts to be operated on, perform the operation, and apply dressings. This is all accomplished while the operator stands outside of the machine.

In poll-evil operation, the two loops which hold the raising device fastened to the top of the table are moved backward two or three feet toward the head of table, and the sling is reversed.

The patient is *backed* into the table instead of being led into it. The head is attached to the upper end of one of the auxiliary attachments, the padded halter being used. The patient is raised off his feet and the hopple chain tightened, as previously described, to the right or left. The surgeon then walks in from back of table, where there is no part to obstruct him. He has free access to the operative field. The rod which holds the body rest, having been specially devised for this purpose, bends at each end, which permits the patient to lie in such a way that there is access to the parts for three to five attendants. Chloroform can be duly administered if desired. By turning the table over six inches from a straight line, the head may be lowered in the position recommended by Professor Williams.

For the roaring operation the patient is backed into the table as described for poll-evil, with the exception of the sling, which is placed over the back of the patient. When the patient is thoroughly under chloroform, by turning the worm-gear device for three seconds the animal is turned completely upside down and the head is loosened and stretched into the desired position. The operator stands completely outside of the machine, with nothing in his way. The head of the patient is tied at a downward angle, and the neck stretched out. After the operation, the horse is turned back again to its side, the head is secured tightly, so that it is at a slight angle, lower than the body, thus preventing any blood from oozing from the wound and running down into the trachea.

For neurectomy the Humane table is better than any described in the article referred to. If a double neurectomy is required, both sides of the table can be used and patient turned to the right or left, the operation being performed on both sides without removing the patient from the table. All veterinarians are familiar with the various neurectomy operations, and it can be readily ascertained by the readers of your valuable paper the easy accessibility the operator would have to all parts of his patient. It is easy for a veterinarian to observe that this table is readily cleansed and made aseptic, as all parts of the machine are removable for this purpose.

The table can be readily used for stocks by removiug both side rests and placing the patient in slings, and raising it off of its feet. This is the position in which the mare is usually placed for spaying.

In making this reply to Dr. Williams' article, we do not wish your readers to think that we do not regard Prof. Williams

as one of the world's experts in his profession, he being a gentleman whom this corporation highly respects; but we feel that Dr. Williams has not been able to make a study of the various operating tables which we are about to manufacture.

We exceedingly regret that we have not a man with his ability on our board of directors, for in placing the various operating tables, which we are preparing to manufacture, on the market, we desire that the professional, rather than the commercial spirit should predominate. We feel that we are making a distinct contribution to science and humanity.

Respectfully,

THE BRADWOOD MANUFACTURING COMPANY (Inc.)

Per H. L. BRADLEY.

EMERSON, NEB., is asking for a graduate practitioner.

"MY wife sent two dollars in answer to an advertisement of a sure method of getting rid of superfluous fat." "And did she get the information she wanted?" "Sure; she got a reply telling her to sell it to the soap man."—*(Mystic, Conn., Times.)*

VETERINARY SCIENCE IN JAPAN.—Before the Restoration the so-called veterinary surgeons were horse and cattle dealers who, besides dealing in these beasts, used to periodically apply needle treatment and other simple methods to the beasts. They were, of course, up to the trick of cheating in transaction of beasts, just as practiced by horse-dealers of other countries. The engagement early in the era of a French military veterinary surgeon by the Army was the first step taken by the Government for the introduction into this country of the science and practices of the Western veterinary surgery. By the subsequent establishment of schools of Agriculture by the Government and also by local offices, this branch of medicine has been reduced to a regular system. Till 1885, there were about 6,000 men who were allowed to practice the art in virtue of their previous experience, but the grant of licenses to men of this class was discontinued in 1890, and from that time onward licenses have been granted only on those who have passed the regular examination or have graduated from the veterinary course at Government or public schools, or at private schools of officially approved standing, either Japanese or foreign. At the end of 1905, 2,545 people had regular licenses, and 1,713 provisional licenses.—(*From "Japan in the Beginning of the 20th Century," Published by Imperial Japanese Commission to the Louisiana Purchase Exposition.*)

SOCIETY MEETINGS.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The meeting was called to order July 11, at 2.20 P. M., by President Price.

After the roll-call, the minutes of the last meeting were read by the Secretary, and approved.

The President then delivered his annual address, as follows:

PRESIDENT PRICE'S ADDRESS.

"It is with pleasurable anticipation that we meet together, in spite of the hot wave that is also present. We all look forward to the laudable increase of our professional knowledge by the interchange of ideas and discussion of experiences, each adding his share to the accumulated knowledge of ages past, and which with each succeeding year enables the discovery of some new disease, or the proper classification of a puzzling malady, placing its control and treatment on a scientific basis. The prevention of many epidemic and contagious diseases is yearly becoming a practical fact. Tuberculosis, animals' greatest foe, is being rendered harmless by immunization of stock through vaccination.

"The empirical administration of drugs which has existed up to the present time, promises to be placed on a scientific basis through the researches of Sajous, of Philadelphia, who has compiled from the writings of such men as Virchow, Brown-Sequard, Osler, Foster, Arnaud, Cybulski, Abelous, Biarnes, and others. The heretofore supposed unimportant ductless glands; the anterior and posterior pituitaries, the thyroids, adrenals, pancreas and spleen, he shows to be, on the contrary, the most important structures in life's processes, they forming an autominous system which regulates the body's functions, the anterior pituitary gland being the general centre, insuring oxygenation of the blood and tissues through the adrenal secretion, the posterior pituitary adjusting and regulating the functional activity of all organs through the nervous system. He further shows that the thyroids sustain the functional efficiency of the anterior pituitary, that excessive secretion by causing over-stimulation of the anterior pituitary body, produces, when prolonged, exophthalmic goitre, and lessened secretion myxœdema. That the pancreas and spleen by the con-

junction of their secretions form trypsin, a powerful proteolytic ferment, which plays a leading part in all immunizing processes, its main function in the blood stream being to destroy toxic albuminoids. These include all the toxins and diastases secreted by bacteria, tissue toxalbumins, vegetable toxalbumins and diastatic ferments. That immunizing means the stimulation of the functional activity of certain of these glands to the extra secretion necessary to overcome the toxins, and the bacterial or other substances producing the poisons. That the necessity of alkaline salts, especially sodium chloride, in the system is dwelt upon, more particularly in acute diseases where they are not replaced through the normal channel, the digestive tract, and shown to be the predominating cause of death. That inherited predisposition to certain diseases is considered due to congenital insufficiency of certain of these ductless glands and a low grade of general nutrition. That the results obtained by certain medication is due to the action on some of these glands, either increasing or diminishing their secretions. Toxins act in the first stage by irritating some of these glands, causing an increased secretion, which, if sufficient, overcomes the toxin and its products. That over-stimulation, however, brings about paralysis or lessened secretion, thus giving the toxin full and undisputed control of the body, resulting in death. As previously mentioned, proper and judicious stimulation produces immunity, but sudden and severe stimulation (as that caused by the rapid invasion of a bacterial toxin) by over-stimulating, results in paralysis of secretion, partial or complete. In this manner the prevention of the development of fatal results from rabies and tetanus is secured. That antitoxins are principally composed of trypsin, the proteolytic ferment from the union of the secretion of the pancreas and spleen. That the adrenal secretion enables the absorption of oxygen in the lungs by the blood, and also the oxidations that take place throughout the entire body, producing nutrition, and also preparing the waste materials for excretion as harmless, non-irritating substances. In the latter case failure to do so, or the only partial oxidation of waste material, results in the production of injurious substances which irritate the excretory channels, causing imperfect excretion and the retention of those foreign substances in the system which produce various phenomena, such as rheumatism, gout, azoturia, etc.

"One thing I must ask you to pay particular attention to, as I have already done in my paper on azoturia, read before this

Association two years ago: it is this, that urea is a perfectly prepared body for excretion, that it is absolutely harmless, non-irritating or poisonous. Its solution can be injected in immense amount into animals without producing the least symptom of any description; in fact, plain water in similar amount will cause evident distress. Uræmia must be renamed; it is an evidence of ignorance. The failure, however, of the perfect formation of urea results, as before stated, in the production of substances only partially oxidized, unsuited for the process of excretion, and injurious to the body.

"Minnesota veterinarians have proved themselves among the most progressive and worthy of confidence. They have aided in the elucidation of the pathology of some diseases that have been a cause of trouble and perplexity. The older members have done their share in spite of obstacles almost unknown to the younger ones: such as unjust criticism and doubt as to the veterinarians' capacity; but let it be said they were always equal to the occasion, and hopefully pass along to the younger members the burden of raising the standard of the veterinary profession to a still higher plane, feeling confident that they are fully equal to the task."

Dr. Price then called for the report on colleges by Dr. Amos.

Dr. Amos: I expected that Dr. Reynolds would be here with that report.

Dr. Price: Dr. Reynolds is busy, but will be here later and we will then call on him. I will call on Dr. Whitcomb for a report on infectious diseases.

INFECTIOUS DISEASES.

Dr. Ward: I am sorry to say that Dr. Whitcomb is at Marshall affected with typhoid fever. He was taken sick about May 21, and has been practically unconscious for the last three or four weeks, but the last letter received from there stated that he was improving. I will therefore offer a report for him in his absence:

"For the six months, ending July, 1906, there have been tested for tuberculosis 7,667 cattle, of which number 748 reacted. There have been inspected for glanders 2,048 horses, of which 317 reacted and were killed.

"You will note that the number of reacting cattle, 748 in six months, is the largest in the history of control work in the state. There has been a vast amount of testing done in the

different parts of the state, and we have tried to enforce the testing of dairy and breeding cattle coming into this state, and as a result there have been a large number of cattle tested, not only at the Minnesota Transfer, but at different points.

"I might say at this time that we have a deficiency of $42,000, as the last legislature made no appropriation for paying claims for horses and cattle.

"So far this year we have had but one or two outbreaks of swine plague, but nothing serious.

"With hæmorrhagic septicæmia we have had a few outbreaks in the late spring months, and one or two recently. Our principal work has been with glanders and tuberculosis."

Pres. Price: We all hear with regret of Dr. Whitcomb's illness, and I am sure we all hope he will make a speedy recovery and be with us soon again. The report submitted by Dr. Ward shows that we have a great deal of tuberculosis in the state, and that the work done in the last six months has been very thorough, and a great many diseased animals gotten rid of.

Dr. Ward: There is one thing I neglected to state to the Association, and that is that the superintendent of Swift & Co., at South St. Paul, made a statement that Swift & Co. lost $50,000 a year by tuberculous hogs which were condemned at South St. Paul. I think during the month of June, the Federal inspectors condemned 350 hogs shipped in from Southern Minnesota. Seventy-five per cent. of a car-load of hogs shipped into South St. Paul have been repeatedly condemned. The disease in hogs seems to be much more general than in cattle. The entire system seems to be affected, especially the glandular system. There is no question but that this disease among swine is increasing rapidly in the dairy sections of the State.

Dr. Lees: Dr. Ward, have you any theories to offer as to why it is on the increase?

Dr. Ward: The only theory is that hogs acquire the disease from the products of the creameries which are not properly sterilized. The law requires that skim milk should be sterilized at a temperature of 180°, and it is questionable if they do that as it requires a great deal of work and the butter makers do not have much time.

Dr. J. W. Gould: I think that if one or two animals are affected, the whole herd will eventually be affected. The hogs may acquire it if running after tuberculous cattle.

Dr. Ward: Yes, we have traced the source of infection in that way. In one case where 72 hogs were condemned we vis-

ited the shipper and found he had lost one cow which he had fed to the hogs, and his hogs were allowed to run behind the cattle picking up the droppings, and I think 50 per cent. of the cattle were diseased.

Dr. Belton (Iowa): I wish to state a case in my experience. In one car of hogs there were 14 red hogs and they were all affected with tuberculosis. I was sent out to the farm from which the hogs were shipped and notified the owner. He had his cattle, 20 milk cows, tested, 14 of which reacted. He was running his own separator on the farm and feeding the milk just as it came from the separator.

Dr. Ward: I believe that tuberculosis is acquired, not through inhalation, but by way of the intestinal canal, and it is virtually the same in cattle.

Pres. Price: I would like to ask if there is any one present who has ever traced it up in this state to dairy-fed hogs.

Dr. Ward: Swift & Co.'s "hog-man" states that in the majority of cases of tuberculosis among swine it has been in those that were fed dairy products. They tell me that there is some peculiar smell among hogs that they can detect when they go among them as to whether they are dairy or corn-fed hogs.

Dr. Leech: I wish to ask Dr. Ward what the clinical symptoms are in swine?

Dr. Ward: Invariably you will find the submaxillary glands enlarged; in fact, you can detect it ante-mortem, if the glands are at all enlarged; the face is puffed out. The inspectors are thus able to recognize it, and immediately they notice any hogs showing that symptom the shipment is tagged.

Dr. Leech: Do you know whether it is found in the intestinal tract or lungs?

Dr. Ward: We have killed a number of hogs on the owners' premises and found the cervical glands infected, as well as the lungs, spleen, and almost every organ in the body. The disease in hogs seems to run an extremely rapid course.

Dr. Lees: Do these tuberculous hogs that are shipped in show any constitutional effects?

Dr. Ward: Not very often. The inspector may examine them and oftentimes the disease is not detected until the animal is on the floor.

Dr. Leech: Why are dairy-fed hogs more liable to be affected than corn-fed hogs? Is it the feed?

Dr. Ward: It comes from the feed by way of the intestinal

canal. Not only the majority of swine, but cattle, acquire it this way.

Pres. Price: Dr. Foster, have you any of it in South Dakota?

Dr. Foster: We have had very little of it, but suppose we will get it sooner or later when cattle are more plentiful.

Dr. Price: We will now call on Dr. Gould for report on

LEGISLATION AND EMPIRICS.

Dr. J. N. Gould: The committee is rather doubtful as to its duties on legislation and empirics. Now, as I am not the chairman, to begin with, I will admit that I do not have a lengthy report to make, and I was all at sea when the Secretary wrote me that I was to make such a report. I supposed the committee was to watch all legislation that might take place, all adverse legislation at least, and also take care of any proposed legislation for the benefit of the profession. In making a report to the Association twice a year it is pretty hard to find much material. The ground has been gone over pretty thoroughly ever since we had such a committee, and the amount of material at hand is rather meagre. I am not in position to know of prosecutions, only by accident. There have been none in my locality of late. I took occasion to write the different state associations that I could reach and received some very interesting replies regarding conditions of law in the different states. The general tone of the letters was to the effect that the laws were working satisfactorily. They were well observed, but of course there were frequent violations. I noticed among various things that were desirable features in the state laws, Nebraska, for instance, and I presume other states have the same, takes away the right to use the title of veterinarian, which Dr. Jensen said rather worried the men who started to practice without a license. Another feature that appealed to me was one in Illinois. There the Live Stock Commission has the enforcing of the law. It is the duty of the commission to appoint the veterinary examiners and prescribe the method under which they will be appointed, oversee the examination, issue the certificates, and it places the veterinarians in touch with the stockmen. It is the stockmen's law and for the benefit of the stockmen. The report was that it was working very satisfactorily and they did not contemplate any changes in the near future. Wisconsin was contemplating making some changes. I think if we have any further legislation, that the different features which I have mentioned should

be embodied in our laws. I think that possibly we ought to have an annual assessment, not over a dollar, as the druggists have. This is also in the veterinary law of Iowa. It provides funds for the enforcement of the law, and every veterinarian would gladly furnish that dollar every year. It provides protection, and the state examining board should have charge of enforcing the law and have funds to work with. I think in this state the law is working fairly well. If we stopped all illegal practice and got rid of the empirics there would not be enough veterinarians to do the work. If our present law prevents more empirics coming into the state, it is doing a good thing; and if we get stronger and more in touch with the legislators of the state, we will get a better law if we need it. There were one or two questions that I did not get any information on. One was the status of the Army Bill, whether or not we got anything through the last session. The other, the status of the appropriation to suppress Texas fever. There was some such provision before Congress for the National Government to provide a certain fund for the eradication of the Texas fever tick, and in those states that showed interest enough to provide a certain amount of funds, the Government was supplying part of the funds indirectly.

Dr. Price: Dr. Gould claims he has not paid much attention to his committee duties, but I think he has.

Dr. Ward: This committee should be divided into two; one on legislation and one on empirics. The members of the Examining Board should be the committee on empirics, because it is the duty of the Secretary of the Examining Board to prosecute.

Dr. J. N. Gould: There was one other provision that appealed to me, and that was the revoking of licenses for some specific cause, but of course allowing the person to be heard in his own defense. If I remember rightly, there is no such provision in our present law. If we had such a provision it would be all right, even though we did not use it.

Dr. Ward: The great trouble is that there are so few veterinarians in the state, and if we attempt any legislation whatever we shall find ourselves in trouble and the "veterinary practice act" open again, because there are a large number of unqualified men who are just waiting the opportunity; in fact, it has been our experience in every legislature since 1893, that there have been one or more bills introduced at every session looking to the reopening of "the veterinary practice act."

Dr. Leech: I consider it just as important to the veterinary profession as to any other profession that we should charge a fee of $1, and also the privilege of revoking a license for cause. That is the only way the druggists are able to hold their men. When a man gets his license from the Board of Examiners he goes away free and I have been told they have no right to question his license, and I believe he should pay $1 or $2, and by so doing they have a chance if a man does not live up to the line of the profession, to revoke the license. It is for the benefit of the profession.

Dr. J. N. Gould: At the present time, as I look at it, we are in a better position for a new law, but I believe we will be in a great deal better position in five or ten years, and as we have the door closed we never want to open it until we are ready to make an ideal law, and I think the longer we let it go the better law we will get. I think by the aid of the men in practice without diplomas and the veterinarians in practice within ten years we will be in line to get some nice legislation, and I believe, as Gov. Folk, of Missouri, said, that it is not so much a matter of more legislation, as it is of enforcing what we have. In Missouri they kept passing laws for years until the present Governor got in, and he does not seem to need any more legislation. The people of Missouri realize they have all the legislation they need when they have a man like Folk behind them. I think if our veterinarians see that the law is enforced we will have ample legislation for the present time.

Dr. Leech: I do not believe we need open up any law, simply an introduction of an amendment to the present law, and no amendment opens up the original. You haven't any chance, at the present time, even as the law reads, to regulate practice in Minnesota, because you have no hold of a man after he receives his certificate.

Dr. J. N. Gould: As far as that amendment is concerned, I think that is all right and probably it would not open up the law, but a few years ago we opened up the law by trying to get an amendment, and a lot of worthless men were allowed in. The general profession did not realize it and the committee did not either, and probably while that would never occur again, I believe that while we are doing well enough we ought not to try to do more.

Dr. Ward: That was simply an oversight and was a lesson to the profession of the state. The amendment was introduced and referred to the committee, and I think none of the profes-

sion attended the meeting when the amendment was up for hearing, and some of the committee had friends who were anxious to be admitted to practice, and one of the members anticipated introducing a bill reopening the veterinary practice act. It was an easy matter when the bill was under consideration for the member to suggest that this proviso be tacked onto the amendment. The amendment was reported to the House and none of the profession noticed it until it was up for its third reading and then it was too late. It taught this lesson, that if we introduce another bill or any legislation governing our "veterinary practice act" that we should watch it from the time it is handed to the legislator, through its course, until it comes up for final reading.

Dr. J. N. Gould: The Governor did not sign that amendment until he asked some member of the committee and was told that it was all right. A member of the Examining Board did not know that that proviso was in.

Dr. Ward: I would call attention to this: that there were over 300 applications for licenses and there were only eight or nine granted, and one of those has since graduated, and others are in such a position that they will do no harm to any one.

Pres. Price: I will say, as I have had more or less to do with every act passed by our state, that at every attempt we have made to have a bill passed, a lot of these empirics have slipped in in spite of every care, and the only way we could prevent that would be to pay some attorney to stay there and watch it. We are told everything is all right, and the minute our back is turned some friend of an empiric slips in and gets some amendment attached that allowed them to get in. If Dr. Leech thinks we should have an amendment he could put it in and have it acted on.

Dr. Leech: I think it would be a good plan that this committee take it up, and, if they saw fit, to spring this matter before the committee and have it acted upon later. From the standpoint of Dr. Ward, I do not think it would. It is the duty of the Legislative Committee to notify your committee so you can be there, and I do not see how these legislators who are 90 per cent. lawyers can tell what is right without a hearing.

Dr. J. N. Gould: There is a great deal of legislative work done not according to rule.

Pres. Price: I will call on Dr. English for information on the Army Bill.

Dr. English: I do not think the Army Bill was acted upon,

but we are in hopes it will be acted upon at the next session. The original bill was changed and was not as satisfactory as the veterinarians wished, but it was approved by the General Staff, which is a great help, and we are in hopes it will be taken up later.

Pres. Price: I think it is to the interest of every veterinarian in the state and country to try and help this Army Bill through. It will give the veterinarian a recognized standing in the country that is granted to him in every other first-class military country in the world, and there is no reason why we should not have it in this country.

Dr. English: The bill as it now stands gives no head to the veterinary profession in the Army. The bill as originally written would give three different veterinarians, who would be advisers to the staff. At present there is no head, of which they are certainly in need. I think one of the best things is that it makes the quarter-masters veterinarians, who are mostly empirics. It also gives some rank to the regular veterinarians.

Pres. Price: We will now call on Dr. Beebe for his report.

BACTERIOLOGY.

Dr. Beebe: During the last year there have been many articles pertaining to bacteriology published, but, however, many of these are not of particular interest to the practitioner. For instance, a large number of these articles are upon the theory of immunity, and are impossible to comprehend unless a person is familiar with all of the previous publications. There is a very good article in the *Journal of the American Medical Association* of April 12, 1906, upon the "Parasitism of the Tubercle Bacillus," by Theobald Smith. This article is particularly interesting to the veterinarian, because Smith has done a very large amount of work upon bovine tuberculosis, and refers many times to these investigations in his article. There is an article in *Monatschrift fur praktische Tierheilkunde* of Jan. 6, upon "Infectional Vaginal Catarrh of Cattle," by Thoms. This disease is quite prevalent in Germany, but never appeared in this country. The July number of the AMERICAN VETERINARY REVIEW contains a very good article by Schricker upon "Protective Inoculation Against Tuberculosis." During the last year many articles pertaining to South African diseases in horses and cattle appeared in the *Journal of Comparative Pathology and Therapeutics.* I thought it better not to give a list of these publications, as they are of very little interest to the

American veterinarian, but if you desire to read them you will find a number of articles scattered throughout the issues of this year. There are two new books published upon the theory of immunity, which are probably very good. As yet I have not had an opportunity to examine them. They are as follows: "Infection, Immunity, and Serum Therapy," by Htricketo; and "Serum, Toxins, and Vaccines," by W. C. Bosanquet. Recently Capt. Pallin, of the British Army, has published a book upon "Epizoötic Lymphangitis." In the *Journal of Infectious Diseases*, of Chicago, No. 3, Vol. III, there is a good article on "Etiology and Diagnosis," by Williams and Ludwin. I have tried to make this report brief by selecting the articles that will be of particular interest to the practicing veterinarian, and trust that they may be of some help to you.

Pres. Price: We have heard Dr. Beebe's report. Are there any questions?

INTERESTING DISCUSSION OF RABIES.

Dr. J. N. Gould: In sending specimens of a rabid animal, what is the best way?

Dr. Beebe: I think the best way is to cut the head off a few inches back of the neck and put it in a large candy pail and pack ice around it. In winter it will keep nicely without the ice.

Dr. Lees: I would like to ask Dr. Beebe under what conditions he would send back a report that the animal is rabid?

Dr. Beebe: For a long time we have been resorting to the inoculations of rabbits and then observing the symptoms, if they become sick after about twelve days. If they die within twelve days, it cannot be considered that the rabbits had rabies, because death is usually due to septicæmia; but if after the tenth day they showed typical symptoms of rabies we consider that the animal from which the brain was obtained was rabid. In many laboratories they are resorting to the finding of Negri bodies. A great many examinations have been made on other animals and people which have died of tetanus, and perhaps ten or twelve other diseases that are somewhat like rabies, and in no case have they been able to find these structures present in other diseases. I think if we find Negri bodies we are justified in saying the animal was rabid. Recently I have been diagnosing rabies by the finding of these bodies. This spring I had about 23 or 24 cases, and in almost every case found these bodies present.

Dr. Lees: In my district there have been a number of dogs

that ran through the country, and the head was sent up to the State Laboratory, and every time the report was that the animal was rabid. All those dogs presented the same symptoms, and have bitten all kinds of animals, but none of those animals have developed a case of rabies. I believe a dog can be affected with a nervous disease or some other disease that presents almost the same characteristic symptoms in the dog, but I do not believe it is rabies. I knew of a wolf that acted the same as these dogs. He was out from Cannon Falls and went into the yard where a dog was and attacked it. It went into the man's woodshed and bit the man. It bit four men in all, and they sent for me to run the wolf down with my dogs. I had two dogs bitten by that wolf, and they sent back a report from the Laboratory that the wolf was rabid. I tied up the dogs and expected to see them have rabies, and I have one of those dogs to-day. One man went to the Pasteur Institute and he did not have it. That wolf acted just the same as all these dogs do, and I am very much inclined to think that there is some nervous disease that shows these characteristic symptoms, but it is not rabies.

Dr. Beebe: We have only had one head from Goodhue County, and I think it was in April. The rabbits died showing the symptoms of rabies. I think a person has to take into consideration that there are quite a large number of animals that do not contract the disease after being bitten.

Dr. Lees: That dog, whose head was sent up to you in April, bit four horses, seven or eight dogs, and several hogs. The dog went into the yard where the children were and licked their faces and the children patted him, and the man patted the dog. He then went to chase out the hogs, and the dog bit the hogs.

Dr. Foster: I believe this in itself is spoken of as one of the symptoms of rabies, that they are more affectionate. I had a case of rabies last fall and I sent the head to Dr. Wesbrook. It was owned by a conductor, and I was called over to see the dog and was told that they did not know what the trouble was with the dog. The dog was in a play-room and the door had two large glass panels. I could see the dog, which was a black bird dog, and watched him a moment. He stood there wagging his tail and jumped up against the glass, and then he would seem to start and look from one side to the other and would run under the bed and come out in two or three seconds and look through the window, wag its tail if it saw the children,

run under the bed and chairs. He was very nervous, but that was about all there was wrong with him. I was rather suspicious, and asked if the dog had been bitten. The owner said he did not know, but his wife thought it was bothered with fleas. I told them not to go into the room, but leave the dog there. He asked the boys if the dog had been bitten and they said it had, when they went hunting the first of September, and it was then the middle of October. The next morning I was informed the dog was dead, and I went out there and found the lower part of the glass opaque from blood and saliva. The dog had chewed the woodwork as much as he could around the edges, and bit the window sash, tore the chairs and sofa, and his mouth was full of excelsior. I was positive that the dog had rabies, and asked if he had bitten any of the children. It seems he had bitten one of the little boys on Saturday night. I told them that I did not want to scare them unnecessarily, but thought it would be best to take the boy to Chicago at once. I packed the head of the dog and sent it to the Laboratory, and rabies was reported. We also found that the dog had bitten a neighbor's dog. We kept that dog confined, and it developed rabies, and I think it was about 42 days afterwards. Dr. Wesbrook reported that the rabbits developed rabies. The first report received from him was on the Negri bodies.

Dr. Lyons: I think 19 of the 20 bitten dogs, which I have lately seen, may not become rabid. About six weeks ago a dog in a neighborhood bit 20 or 25 dogs and also bit a horse three times. That horse, about ten days ago, showed every symptom of rabies and died. None of the dogs have shown a rabid symptom that we know of.

Dr. Amos: I think there is a great deal that depends on the condition of the animal when it bites and the condition of the saliva and the amount. I have had quite a little to do with rabies and will cite one case. A farmer had several cattle which were sick and he thought they were suffering from being turned into the corn-stalks. I went out, and, to my mind, they had unmistakable symptoms of hydrophobia, and I asked the man where the dog was that bit the cattle. He said he shot it. I asked if it had bitten anything else, and he said yes, and that he had his hand torn. That dog bit another dog which went over into a lot of hogs and sheep and over 20 odd sheep were torn, and not one developed any rabies. Of the cattle which the rabid dog bit, 17 out of 21 head died of hydrophobia. The same dog went over and bit several hogs and nearly every hog

died. I think that a great deal depends on the condition of the animal which does the biting.

Dr. Keys: I have had about 30 cases of rabies reported since the first of January.

Dr. Foster: Last spring there was an epidemic of rabies in Campbell Co., S. D., and three men were bitten by the same dog; the first man went to the Pasteur Institute and has never developed rabies, although he has not been well since. Then the dog went eight miles from there and into another man's yard, a Russian, and attacked his dog, and finally bit the old gentleman, and then his boy came out and it bit him. Neither went to the Pasteur Institute, and the boy died of rabies, but the man is still alive.

Dr. Price: I would say that I was bitten several years ago. I disinfected the wound thoroughly and used carbolic acid and everything else I had, but I decided I would take the treatment. While I was down there three cattle died which had been bitten by the dog within half an hour after it attacked me. An abrasion, no matter how slight, is dangerous. You must take into consideration whether it is a dog with worn teeth or sharp teeth. A dog with dull teeth might produce it in a person on uncovered portions of the body. If bitten through the clothes, they are a protection. The clothing protects by taking the virus off the teeth. The first animals bitten in a herd are more liable to succumb than those subsequently bitten. There are a great many considerations to be looked into. The other day I saw a report of a man sending the head of a dog into the Laboratory and the bacteriologist inoculated some rabbits, and at the end of 20 days sent back a report that it was not rabies. My own dog was bitten by a strange dog running down the street. I tied it up, and four weeks after it began scratching, and would cry so piteously I had to shoot it. Dr. Beebe got part of the head, I believe, and inoculations proved positively that the dog had rabies. I have seen the disease in all forms, and cannot say that I ever saw any two cases alike. I had two cases last winter which had stiff necks and it hurt them when you would turn the head, but there was something peculiar about those cases which I could not describe. There was no history of a bite, but I suspected rabies and I told the owners to tie up the dogs and bring them back in a day or two; these two dogs developed paralytic rabies on the second day, and the city laboratory got both of them. I have had others where there would be a lack of ability to support themselves. The limbs would

seem to give way under them. As I said, it develops in so many forms, that I do not care how expert a person is, they are liable to make a mistake in diagnosing the disease, and the only way we can tell is by inoculation, and it is our duty to always err on the safe side. Do not ever get it into your head that it is not rabies. Two little children were sacrificed just over the humane society poohpooing this idea.

Dr. Lyons: How long do you recommend tying up a dog after being bitten?

Pres. Price: It is very seldom a dog will develop it before the second week, yet it is advisable to tie a dog up as soon as possible after being bitten. We are not certain as to the period of incubation. It may be two months and it may be six months, and some have said two years. One doctor reports a case that ran three years, and there was no bite in between, in a human being. The only way to do is to act on the safe side.

Dr. J. N. Gould: What is the expense of the treatment for rabies?

Pres. Price: From $100 to $200 for treatment. There are a number of forms of treatment; in fact, there are more than I think you have any idea of. There is the inoculation of a weakened cord by exposure to the atmosphere; and then there is the intensive treatment given in cases of bites around the head. The average percentage of deaths from bites on the body through the clothing, 1 per cent.; on the hand and extremities, 16 per cent.; on the head and neck or the upper part of the body, runs as high as from 30 to 60 per cent. You see the percentage of deaths from rabies is very irregular. More people die from bites on the head than from bites on the hand. Bites on the hand are more dangerous than on the extremities. The nearer the brain the quicker it will develop. If bitten on the head, you cannot take treatment too quickly. The virus evidently travels along the course of the nerves. When bitten on the head they generally give the intensive treatment. They run you up as quickly as possible to the highest virus, then go back three days, and run up the second time, and then go back two days and then run up again. There are modifications of this treatment that are very interesting. Suppose your dog is bitten by a rabid dog, or a valuable horse is bitten. If you can secure the brain of that dog you can give him modified treatment, and the peculiar part of rabies is that the more virus you inject subcutaneously the less he is liable to develop rabies. Now, working

on that fact, you can take the brain and mix it with an antiseptic or make a solution of it and use that solution, administering an injection every day, gradually giving it stronger and stronger until you get an emulsion of the actual cord. Hoyge used that method, and others used modifications of it. There is no reason why animals could not be treated in that way, but I have never tried it.

Dr. J. N. Gould: Would an antiseptic weaken the virus?

Dr. Price: Yes, it weakens the virus. But carbolic acid is absolutely useless. While I was in Chicago, a boy died from hydrophobia. There had been a slight abrasion of the skin on the back of the hand and they had put pure carbolic acid on it, and yet that child developed rabies in a very short time. Investigations show that citric acid and creolin are the two most active destroyers of the virus.

Dr. Gould: Supposing a man had a valuable horse bitten, would it pay him to give that horse the treatment? Could he procure the treatment from the laboratory?

Dr. Price: Yes; it could be shipped down, for that matter.

Dr. Gould: The expense would not be so much greater than for a human being. Is it a fact that it is more difficult to find the Negri bodies in dogs that have been killed than in dogs that have died from rabies? In other words, if you suspect a dog is rabid and destroy him on suspicion, would it be more difficult to find the Negri bodies than if the dog was allowed to die from rabies?

Dr. Beebe: Yes, it is usually more difficult to find them. In some cases you can find them several days before the dog would naturally die. Nearly all that have been sent in have been from cases that have been killed. Occasionally there is a brain in which we cannot find the Negri bodies, even if the dog has died.

Dr. Gould: In making up the virus for human inoculation, do they use the substance from the brain of a rabbit that has recently died?

Dr. Price: In preparing the virus the first cord used is generally hung for 18 days in a flask in which there are particles of caustic soda that absorb the moisture, prevent decomposition, and enable the drying of the cord in the hottest weather; then they cut up this cord into sections and rub a portion of it with a little sterile water, about a cubic c.m., and inject it under the skin the first day. The next day they give a portion of the

cord which has only hung for 17 days, and so on until they get down to a cord hung only three days, and this is the strongest virus they use.

Dr. Gould: There does not seem to have been much work done along this line in animals by Pasteur.

Dr. Price: No, but he did work on cattle, and somebody else in France did some work. They found that injecting it intravenously in certain animals did act as a protective virus in place of producing the disease.

Dr. Beebe was asked to explain about the Negri bodies.

Dr. Beebe: They do not know definitely what they are. Negri in his original article suggested that they might be protozoa, and since that time a great many articles have appeared. Some hold they are protozoa and some that they are not. Some claim that they are only due to degeneration. There is good evidence to show that they are protozoa and good evidence to show that they are not. One thing that points negatively is that they take the acid stain and not the basic stain. Most protozoa take the basic stain, but these bodies take the acid stain. There are a few chromatin granules found in them that will take the basic stain, and some people have suggested that these bodies might be neuclei. Ludwin and Williams in their article claim that they have seen bodies that appear to be plastic; that is, the form might be changed by pressure, etc. It is hoped that in the near future the nature and significance of these studies can be determined.

Pres. Price: We have discussed this quite thoroughly, and I will call for Dr. Lipp's report, if there are no more questions.

Dr. Lipp was not present, but would be later.

Dr. J. N. Gould: I have received a circular recently from the Pasteur people in which there is a mention of curing glanders by the use of mallein.

Dr. Amos: That was not the Pasteur people. It was the New York veterinary correspondence school.

Pres. Price: I think we passed a resolution at the last meeting condemning the advertising of mallein as a curative agent. We have, I am sorry to say, the resignation of Dr. Butler before us, and I wish it to be read. Dr. Mack, the Secretary, then read the letter of resignation. It was moved and seconded that the resignation be accepted.

The meeting then adjourned.

The meeting was again called to order at 8 P. M.

Dr. Cotton's paper was then presented.

Dr. Price: We will now call on Dr. Lipp for his

REPORT ON MEDICINE.

Dr. Lipp: I shall confine my report to the mention of a few of the new books published during the last year. I do this not from lack of valuable material to review, but rather to be concise and adhere strictly to the program, and make this a report only. Several books will be mentioned that do not come under the subject of medicine, but since they are of high merit, and closely related to our subject, I shall take the liberty of mentioning them. Replies received from letters sent to three of the leading publishers of veterinary books served as the basis for this report. A new book on "Diseases of Cattle, Sheep, Goats and Swine," by Dr. Moussu, of the Alfort Veterinary College, and translated by Dr. Dollar, of London, is good. It includes surgery as well as medicine. There is a revised edition of Neuman's "Parasites and Parasitic Diseases." This is an old standard brought down to date. Both volumes of Hayes' translation of Friedberger and Fröhner's "Pathology and Therapeutics of Domestic Animals" are now ready. This translation is much superior to Zuill's translation. In Germany Friedberger and Fröhner are regarded as high standards of authority. There is a small book by Dr. R. A. Craig, of the Indiana Experiment Station, on "Diseases of Swine." A translation of Dr. Kitt's "General Veterinary Pathology" is at last ready. This is the only strictly veterinary pathology available in English. It is written by a man who has a world-wide reputation as a pathologist. A revised edition of Ostertag's "Meat Inspection" is just out. This is also a standard work, by a recognized authority on meat inspection. A revised edition of Moore's "Pathology of the Infectious Diseases of Animals" appeared last spring. There are revised editions also of Winslow's "Materia Medica" and Smith's "Veterinary Hygiene." There is a new "Veterinary Physiology," by Dr. Paton, of London. It is very brief and concise, but by a physiologist and teacher of experience. Those interested in tuberculosis will find much material in the Second Annual Report of the Henry Phipps Institute for study, treatment, and prevention of tuberculosis. The *Journal of Infectious Diseases* contains valuable articles, as do also the various veterinary and medical journals.

Dr. Price: You have now heard Dr. Lipp's report, and I will call on Dr. Dell for his paper.

"THE ANIMAL INDUSTRY IN THE PHILIPPINES.

By Harry Dell, D. V. S., U. S. Inspector, B. A. I., Mankato, Minn.
(Late Director Animal Industry Insular Bureau of Agriculture, Philippine Islands.)

"*Mr. President and Gentlemen of the Association:*

"When your Secretary informed me that I would have the privilege of addressing you I was somewhat at a loss for a subject. However, since my return from the Orient, I have been so frequently interrogated concerning the animal industry of the Philippines that it occurred to me that a brief *résumé* of the conditions prevailing there would be of interest.

"The present status of the animal industry in the Archipelago is not of the most encouraging nature nor do the opportunities for the animal husbandman in the islands appear as attractive or promising of success as in other fields.

"Numerous visitations of infectious and contagious diseases have in the past few years ravaged the islands, resulting in losses of a most deplorable nature among the draft, meat and milk producing animals. In some provinces reliable evidence is obtainable of the loss of 90 per cent. of the working animals. In consequence much of the available agricultural land lies idle and destitution prevails among the laboring classes.

"The animals which escaped infection or survived the attacks of disease are not as a rule those which would, under other conditions, have been selected for breeding purposes and recent importations of new animals have in most cases met with disaster.

"In addition the unsettled conditions prevailing in the islands previous to the American occupation were not calculated to encourage any desire or foster any efforts toward the improvement in quality or quantity of the live stock.

"Under the Spanish *régime* some desultory attempts were made, under government patronage, to establish breeding stations at different points throughout the islands, but the work was abandoned before any decided results were apparent.

"Chief in economic importance of the animals in the islands stands the carabao or water buffalo. These animals are of the bovine type, weighing about 1,500 lbs., of deliberate movement and possessed of immense horns. They are used in agricultural pursuits and for hauling heavy loads. As long as present methods of rice cultivation prevail and until road making in the provinces receives some attention, no other animal can or will dis-

place the carabao. The value of good ones has increased in three or four years from 15 pesos to 80 and 100 pesos per head.

"So urgent has the demand been for carabao that the civil government undertook the importation of 10,000 head from China and India. These were to be sold to the agriculturists at cost after immunization against rinderpest.

"Unfortunately these animals, while of semi-aquatic habits, are poor ocean travellers and many succumbed on the trip. In addition the first two shipments developed hæmorrhagic septicæmia shortly after arrival in Manila, from which a large per cent. died and those which recovered were unfit for service for a long time.

"Subsequent shipments developed surra and rinderpest and the contracts were finally annulled by the government and the project abandoned.

"While none of the domestic animals are, properly speaking, indigenous to the islands, the so-called native pony more nearly approximates a distinct type as the result of environment and haphazard breeding. Descended from animals brought over by the early Spaniards they still give evidence of their Castilian ancestry.

"They are small wiry little fellows, ranging in height from 45 to 50 inches, generally of good conformation and action and possessed of remarkable endurance. Good ones range in price from 100 to 350 pesos, while race ponies bring from 1,000 to 5,000 pesos.

"The males are seldom castrated, which necessitates constant watchfulness on the part of attendants in the stable and on the streets to prevent fighting.

"Owing to the scarcity of horses in the islands, several enterprising dealers undertook the importation of Manchurian ponies, but soon abandoned the plan. The Manchurians are larger than the native, of more clumsy build, with coarse heads, low set, and possessing treacherous dispositions. In addition they do not well stand the climate. The only cases of heat prostration in the horse which came under my notice while in the islands, was among animals of this breed.

"Most satisfactory results have been obtained from the introduction of Australian horses, the demand having greatly increased during the past three or four years. They approximate 15 hands in height, are of good style, action and conformation, and find ready sale at $300 to $500, gold.

"Horse racing is a regular attraction in Manila on Saturday

and Sunday afternoons. There are classes for native and Chinese ponies. The attendance is always large, and on account of its cosmopolitan character, at times quite demonstrative. The jockeys are usually Filipinos or mestizas and differ little from our own in America, save in point of color. Bookmaking is a regular feature at the tracks, and the omnipresent John Chinaman usually goes home with his capacious pockets filled with pesos.

"Throughout the islands very few cattle are to be seen. While they are called 'native' they differ in no material respect from their Australian or Chinese progenitors excepting that they have diminished in size.

"Dairying, outside of Manila, is practically not engaged in, the provincial fresh milk supply being for the most part derived from the carabao. In the environs of Manila are a few small dairy herds composed of Australian and Indian cattle. Fresh milk of the bovine variety finds ready sale at 50 to 60 cents gold per gallon.

"The Insular Bureau of Agriculture conducts a dairy in Manila to supply milk to the numerous hospitals of the city, the surplus being sold to residents. The cows are of mixed American and Australian breeding, and furnish milk of good quality.

"In general, however, the milk supply of the islands is of the canned variety, that being easy of transportation, hermetically sealed and free from the infective organisms peculiar to the Orient.

"There is little opportunity for dairying on a large scale outside of Manila, and there the high price of food stuffs and ice and the ever present liability of cattle to insidious infectious diseases make the undertaking a hazardous one from a financial standpoint.

"The meat supply of the islands is likewise largely of the canned variety. The fresh meat furnished the army and navy and that sold in the shops patronized by the American population is derived from Australia. Formerly this was sold at exorbitant prices, but of late conditions have changed owing to brisk competition among the dealers.

"The Spaniards and Filipinos do not, however, take kindly to the cold storage meats, preferring that freshly killed. The annual imports of beef cattle into the city of Manila amount to about $700,000. Other ports receiving beef animals in smaller quantities are Iloilo, Cebu and Zamboanga.

"This beef supply is almost entirely derived from China and Java. In Manila the slaughtering is done under the supervision of the Board of Health, the inspection including a daily examination of the butchers themselves before the work commences. Ante-mortem examination of the animals is made on board ship before unloading.

"The matadero or slaughtering establishment is situated on the water front. Killing begins at five o'clock in the evening and is completed by seven. The meat is air cooled and by four A. M. is exposed for sale at the various marcadas of the city.

"Post-mortem condemnations of cattle are principally for rinderpest. Tuberculosis is rare and actinomycosis is unknown. Large numbers of hogs are condemned for cysticercus cellulosa.

"In the provinces the killing of a beef animal is an event of much importance, usually assuming the nature of a barbecue and commemorating one of the numerous fiestas.

"In the smaller pueblos and barrios, the fresh meat supply consists almost entirely of pork and the flesh of goats. These animals are the scavengers around the houses and attend to that work most thoroughly. The hogs are of Chinese origin and resemble the fast disappearing razor back of our own South. In the Province of Tarlac some very large specimens were noticed, hog-raising in that vicinity having received more than usual attention.

"Castration is not usually practiced on the domestic animals, excepting in the case of the carabao, the crushing method being employed to render him more docile.

"The animal diseases prevailing in the islands are sufficiently numerous to make it a large field for the bacteriological investigator. Chief in economic importance are surra, rinderpest, hæmorrhagic septicæmia, epizoötic lymphangitis, glanders and tick fever. Tetanus is very common in some localities.

"The external parasites are legion, including many varieties of ticks and biting flies. The screw worm fly (*Compsomia macellaria*) is the cause of much suffering among animals and occasionally attacks the natives.

"Most of the veterinarians in the island are employed by the civil or military government. A few are engaged in private practice in Manila.

"In the Army are the regular army veterinarians and the civilians attached to the Quartermasters' Department. Under the civil government the veterinary force originally consisted of the Director of Animal Industry, Bureau of Agriculture, in

charge of animal husbandry; Chief Veterinarian, Board of Health, and eight assistants, charged with the control and eradication of contagious diseases; veterinarian to the Serum Institute, and one veterinary inspector of the Philippine Constabulary.

"The force has recently been reorganized more nearly along the lines of our own Bureau.

"The civil government has recently built and equipped in Manila one of the most complete laboratories in the world, and with the existing field for research and the strong *personnel* engaged in the work, in a short time it is hoped that the diseases which now militate so powerfully against animal raising will have been brought under subjection, and that the industry will assume proportions in keeping with the population and increasing intelligence of the islands."

Dr. Lyford presented his report on surgery, which is published in this number of the REVIEW in the department for "Original Articles."

DISCUSSION OF OPERATION FOR BOG SPAVIN.

Dr. Leech: Dr. Lyford tells us about Dr. Hughes' operation, and I have been waiting about four years to hear Dr. Lyford's opinion of this.

Dr. Lyford: I think we ought to hear more of Dr. Hughes' method. As far as this operation is concerned it seems very feasible. I will admit that I have always felt a little like hoodooing the "blood spavin." Last winter I saw a great many operations by Dr. Hughes and Dr. Merillat. Dr. Hughes asked me if I had performed that operation and what I thought of it. He said that until he had looked up the old idea of blood spavin, back fifty or a hundred years ago, it never occurred to him until he did this operation, and found that the blood spavin disappeared. He thought the "old fellows" knew something of blood spavin. A great many of those things out of date are of importance to us if we look at them in the right light. I think Dr. Hughes' operations have come from accidents. Neither have they all been caused by non-graduates, but as a horse meets with an accident every day. I have seen cases where splinters have penetrated the bursa and I put a blister on immediately and with irritation you get union; you keep out the air and the germs, and bood poisoning is prevented. If we can do that in a runaway or accident, why not do it surgically and get good results? When in Iowa a year ago, Dr. Heck, of West Liberty, was telling me of a farmer who was willing to operate

on anything, and as Dr. Heck was at the farm doing some other work the farmer insisted on having the Doctor open a bog spavin on a yearling colt, saying he thought perhaps Dr. Heck would not cut as many bloodvessels as he had done, and then showed the Doctor a two-year-old on which the farmer had operated the year before. Though he admitted the colt nearly bled to death, he had succeeded in stopping hæmorrhage by bandaging the hock with cloth, and wrapping binding twine tightly around the cloth. The rags and twine were left on the leg for a week, fearing further bleeding. The colt had made a fine recovery and was well and sound except scar on back tendons from wrapping twine having been too tightly drawn or left too long without removing. Still Dr. Heck hesitated, but the farmer insisted, so Dr. Heck made an incision one and one-half inches long, vertically, on inside of hock, passing bistoury into bursa so that the hock was completely drenched, and with as strictly antiseptic conditions as possible the joint was covered with absorbent cotton and bandaged tightly. The Doctor did not see the colt again for two months, when it was seen at pasture apparently in the best of health and having completely recovered, with no indications of a bog and scarcely any scar noticeable. The Doctor says that during his operation there was no hæmorrhage. Reports have come from several others on just about the same thing, and I know that if you close the hole up immediately, you avoid serious complications. The irritation probably has destroyed to a certain extent the secretion. Possibly a certain amount comes from cutting off the blood supply. If you may cut one or more branches I feel that it is more surgical to do it (where you can) when it looks favorable and safe. No doubt many of you have had the experience I have of seeing things cured by accident. I want to say here that I have found hot water one of the best antiseptics that I can use. Either with instruments, wounds, or other things, the more hot water you use and the less you depend on creolins the surer you will get on without having blood poisoning. I believe the man who puts the hot applications on does more good than the man who puts on creolin and like emulsions.

Dr. Gould asked concerning the branches.

Dr. Lyford: I have not looked up those branches. I intended to dissect them out myself. Dr. Hughes said that they were so small they did not amount to much and caused but little trouble when ligatured. It is a small branch that furnishes

the hock and may be in some cases larger than in others. He says it is quite easy to detect. He also says he just ties a ligature around the artery and nerve and gets better results than if he did much cutting. It is comparatively a simple operation. The branch is easily found.

Dr. J. N. Gould: A farmer had a case of enlarged hock and he decided he would stick his knife through it; the vein was cut and the horse nearly bled to death. He not only opened the vein, but the joint, yet the horse made a nice recovery.

Dr. Foster: It seems to me that there is a little mix-up in regard to the spavin. You speak of blood spavin and bog spavin. I cannot see how opening that could be performed with impunity.

Dr. Lyford: I say it is often performed successfully.

Dr. Foster: What constitutes the cure? It seems to me you would have a stiff joint.

Dr. Lyford: The question is, what it destroys? If we have no lameness after treatment it is a success. As Dr. Hughes says, the blood and the bog, so-called, may be simply a variety of the same thing. You may have both. If the bog is the result of an increased and enlarged vessel and the ligature destroys that secretion, why is it not correct to destroy the vessel?

Dr. Price: I will call on Dr. Mackey, who has seen this operation performed, to tell us what information he gained.

Dr. Mackey: I have seen Dr. Henck on what he called the ligation of the posterior branch of the vein. One mare had a large hock on one leg and he fired the bog-spavin and ligated the vein both above and below the hock. He brought the same mare in afterwards; the bog-spavin was about one-third the size it was before. There was no scar and you would have to look closely to see it. He only makes the incision one-third of an inch long. He cuts off the nerve supply and the circulation and absorption takes place to such an extent that it makes the enlargement smaller.

Dr. J. N. Gould: Just what is that vein?

Dr. Mackey: It is what he calls the posterior branch of the *tarsal vein.* It can be followed right through and located below the hock also.

NEW MEMBERS ELECTED.

Dr. Price: We will now take up the applications for membership, which should have come in the morning session, but which we were unable to secure on account of the Examining

Board not being through. The applicants are all graduates of colleges, and have passed the Veterinary Medical Board of Examiners of this state.

The Secretary then read the following names of applicants:

Edwin Mackey (C. V. C., 1906); vouchers, Drs. S. H. Ward and Lambert.

R. J. Coffeen (C. V. C.,); vouchers, Drs. S. H. Ward and D. M. McDonald.

G. E. Metzger (C.V. C., 1906); vouchers, Drs. M. J. Sexton and C. E. Cotton.

J. F. Mack (McKillip, 1906); vouchers, Drs. R. Price and D. M. McDonald.

R. J. Philp (Ont. V. C., 1905); vouchers, Drs. Harry Dell and M. H. Reynolds.

C. B. Estey (McKillip, 1906); vouchers, Drs. C. A. Mack and S. H. Ward.

Henry N. Thompson (McKillip, 1906); vouchers, Drs. A. A. Keys and C. E. Cotton.

It was moved, seconded and carried that the Association act collectively on these applications. Upon a vote being taken all the above were admitted to membership, and were then called in and introduced to the other members.

Dr. Price made the announcement that the clinic would be held the following morning at the University Veterinary Hospital.

The meeting then adjourned. C. A. MACK, *Secretary.*

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The November meeting of this Association was held on the evening of the 7th, in the lecture room of the New York–American Veterinary College, with President Roscoe R. Bell in the chair, and Secretary D. J. Mangan, recording.

The room was well filled with members, visitors and students, the splendid program announced attracting veterinarians from the city and adjacent territory, demonstrating the proposition that the magnet to bring veterinarians together is the provision of a program which they cannot afford to ignore.

The guests of the evening were Drs. Simon Harger, of Philadelphia, and Frank H. Miller, of New York City, besides announced papers by Drs. F. C. Grenside and Charles E. Clayton, of the membership.

At the March meeting Dr. Miller exhibited an interesting little animal, in the shape of a King Charles spaniel, who was affected with a peculiar nervous condition, in which he would involuntarily roll to the right. He could not stand, and under any excitation would roll over and over toward the right, but when quiet could rest upon his sternum if propped up. At the request of the President, Dr. Miller again exhibited this patient, and gave an interesting description of his symptoms and tedious recovery subsequent to the March meeting. The "forced movements" had entirely subsided, but in their place a moderate degree of chorea was present, which was scarcely noticeable when devoid of excitement, but aggravated when frightened.

Dr. Harger had prepared a paper detailing the method being pursued by the Pennsylvania State Live Stock Sanitary Board in its campaign against the recent extensive outbreak of glanders in that State, and which is directly under his supervision. It was a most comprehensive statement of the work being done and some very valuable deductions were made as to the test with mallein, and the status of ceased reactors. It excited a lengthy discussion, participated in by Drs. Berns, Ackerman, Clayton, Mangan, and others.

Dr. Miller brought before the meeting a most complete history and post-mortem findings in a case of rabies in a dog; an interesting feature being that, although the brain was furnished to the laboratory in an advanced state of decomposition, no difficulty was experienced in finding Negri bodies in profusion, which confirmed the very suspicious history and symptoms as described by the owner in a letter which Dr. Miller read.

Following Dr. Miller, Dr. Charles E. Clayton presented some interesting case reports, emphasized and rendered more valuable by a display of specimens from the subjects. One of these was an ankylosed hock joint, surrounded by an enormous bone spavin, a fit one to adorn a museum of curiosities. Then the fragments of the os suffraginus of a horse fractured into pieces no larger than a silver quarter, and which had occurred with very slight provocation.

The discussions had been so general that the hour was well advanced, and, as there were a number of applications for membership to be acted upon they were taken up. Five gentlemen were elected, which is a most healthy symptom of interest in the organization. They were: Drs. R. E. Waters, Gravesend; C. S. Chase, Bay Shore; C. N. Darke, A. J. Wood, and M. F. Henry, New York City.

On account of the lateness of the hour, and at the suggestion of the author, Dr. Grenside's paper was deferred until the next meeting, as well as a number of papers in the "question box."

For the December meeting, Dr. Richard P. Lyman, of Hartford, Conn., will read a paper on "Differentiating and Treating Intestinal Disorders in Solipeds;" Dr. Grenside on "Action in Horses;" Dr. Ackerman, "Case Reports in Canine Medicine." There are also a large number of questions in the "box" for discussion. (R. R. B.)

AMERICAN VETERINARY MEDICAL ASSOCIATION.

CHANGE OF DATES FOR MEETING.

Secretary Lyman notifies the membership through the REVIEW that the next meeting of the A. V. M. A. will be held on September 10, 11, 12 and 13, 1907. This is the choice of the members as expressed by the recent postal vote. The Secretary summarizes the vote as follows: Members in good standing, 612. Total vote cast, 309; total number failing to vote, 305. Total number voting "Yes," 274; total number voting "No," 26; number who expressed choice but failed to sign name, 2; signed name but expressed no choice, 7.

NEW YORK STATE V. M. SOCIETY.

President Williams has appointed the following Committee of Arrangements for the meeting of 1907, which will be held in New York City: Drs. Charles E. Clayton (Chairman), J. E. Ryder, George H. Berns and Roscoe R. Bell.

THE AUTOMOBILE SUPERCEDING THE HORSE.—*Jones:* "Veterinary surgeons, horse breeders, dealers and lovers of the horse are always trying to make it appear that the auto is not taking the place of that noble animal; but I say that it is, in everything; why, the other morning at my boarding-house, I found a piece of rubber tire in my sausage."

DR. J. G. RUTHERFORD, Veterinary Director-General and Live Stock Commissioner of Canada, was recently reëlected President of St. Andrew's Society of Canada, a powerful organization of the sons of Scotia in that dominion. There was an active contest for the honor of presiding over its meetings, but the versatile veterinarian prevailed over his opponents in this as in most other fields.

NEWS AND ITEMS.

DR. E. C. ROSS, of New Haven, Conn., is spending the winter in Daytona, Florida.

DARWIN asserted that there is insanity among animals just as there is among people.

DR. C. A. KRAUSE, Inspector B. A. I., has been transferred from Salisbury, Mo., to North Fort Worth, Texas.

SECRETARY HAL C. SIMPSON, of the Iowa Association, recently suffered a painful accident by spraining his ankle.

READ the valuable discussion on rabies in the report of the last meeting of the Minnesota Association, published elsewhere.

THE CHICAGO HORSE SHOW, contrary to some predictions, was largely attended and the program enthusiastically carried out.

DR. J. H. MCNEIL, of Ames, Iowa, and Dr. J. H. Gain, of Nebraska, were the veterinary inspectors at the recent Omaha Horse Show.

"I HAND you herewith my renewal of subscription to the *indispensable* REVIEW."—*(Geo. W. Turner, Vet. U. S. Army, Highwood, Ill.)*

CEDAR RAPIDS, Neb., needs a good graduate veterinarian. Also Wayne, Neb., Dr. W. A. Hammond having moved to Blair, same state.

DRS. G. R. WHITE and JOSEPH PLASKETT served in the capacity of official veterinarians to the Tennessee State Fair, which was recently held in Nashville.

CHARLES B. BANKS (Harvard '97), formerly of Lowell, Mass., has located at Memphis, Tenn., where he has established himself in a new hospital for large and small animals.

DR. W. D. WRIGHT, former Meat Inspector at Fort Worth, Texas, who was transferred to the Philippine Insular Service, has been invalided home on a five months' vacation leave to recuperate.

"THE LARGEST MULE IN THE WORLD," so it is said, is owned by Luke Emerson, of Bowling Green, Mo. She is called "Missouri Queen" and stands 18½ hands high and weighs 2,260 pounds.

DRS. M. H. MCKILLIP AND L. A. MERILLAT, of Chicago, and Geo. W. Turner, U. S. Army, Highwood, Ill., were the veterinary inspectors of the Chicago Horse Show, held at the Coliseum, Oct. 29 to Nov. 3.

G. A. KAY., M. D. C., has removed from Avoca, Iowa, to

Boulder, Colorado, where he has engaged in practice. The primary object of the change was for the benefit of his health, which has greatly improved at his new location.

DR. D. ARTHUR HUGHES, Veterinary Inspector, Subsistence Department, U. S. Army, will address the medical men of Omaha, Neb., at the Commercial Club, during the winter on a subject of interest to students of comparative medicine.

THE MCKILLIP VETERINARY COLLEGE has over two hundred students enrolled for the present session. There are eighteen in the night course. Only freshman work is given at night, which is stated to be as satisfactory as the day course. The junior night course has been dropped.

HORSE BREEDING is being greatly encouraged by the government in Japan. A sum of $375,000 has lately been made available by the Mikado's government for the establishment of public studs at various points in the island empire and it is proposed to begin at once the purchase of 1,500 stallions to be placed in these public depots.

DR. T. S. CHILDS, of Saratoga Springs, N. Y., has retired from general practice and removed to California, where he will remain for the winter and permanently if he likes the country. His headquarters will be at the Oakland race-track, Emeryville, where he will maintain a stable of high-class horses, which will be in charge of Sandy McNaughton, the well-known trainer.

DR. W. P. ELLENBERGER, formerly of Cincinnati, Ohio, is busily engaged in directing the work of the Bureau of Animal Industry in the South, with headquarters at Nashville, Tennessee. He has twenty-five veterinary inspectors on his force and they are making much headway toward Texas fever and tick eradication. Dr. Ellenberger and his force of inspectors also have charge of Southern cattle transportation.

DR. W. E. MCGARTH, professor of meat inspection at McKillip's, which position he has held since the organization of the college, resigned October 1. Increase in his duties as chief meat inspector for Illinois demanded his dropping his college work. Dr. Milnes has been procured to fill the position made vacant by Dr. McGarth's resignation. Dr. Milnes has had 9 years experience as federal meat inspector, and is thoroughly familiar with all the departments of the work. Being an able and conscientious worker, it is expected that he will keep the department of meat inspection of the college on the high plane it has heretofore occupied.

"ALTERATIVE."— A "Subscriber" wishes the REVIEW to

define the word "*alterative*" as applied to the action of certain medicines. The "National Medical Dictionary" says: "A remedy improving the nutrition of the body without exerting any very perceptible action on individual organs." "Dunglison's Medical Dictionary" gives substantially the same definition, and adds: "As medicine improves, this uncertain class of remedies becomes, of necessity, diminished in number."

ROBERT GREEN, better known as "Uncle Bob," and familiar to every one who knows anything about famous old Belle Meade Stock Farm, Nashville, Tenn. (where the A. V. M. A. spent such a pleasant afternoon on the occasion of the visit to Nashville in 1897), is dead. He had been master of the stud since its establishment, and all the famous sires of Belle Meade were his especial care. The members of the A. V. M. A. will remember with what pride he led out and exhibited his distinguished charges.

DRS. F. C. CATER AND L. B. HUFF, after obtaining their degrees from the Kansas City Veterinary College in 1904, engaged with the government to go to the Philippines, one as contract veterinarian in the Army, stationed at Fort McKinley, the other with the Department of Agriculture at Manila. Their terms of service having expired, they returned to the States by way of the Suez canal, arriving at Newport News the first of November, and after spending a few days at Washington, came to New York, where they made a pleasant call at the REVIEW office. Dr. Huff expected to take a carload of mules to Cuba from Newport News before returning to his home in St. Joseph, Mo. The young veterinarians were fully pleased with all they had seen and experienced, but did not care to continue longer in the Far East.

COWS EAT TOBACCO STALKS WITH IMPUNITY.—*Kent, Conn., Nov. 11.*—The cows in this part of Connecticut are a progressive lot. Early in the fall they nearly all had stomachache from eating too many apples. Now they have got to chewing tobacco. "Goshang it," said Bill Parcells, "they'll be smokin' cigarettes next. There's too much education floatin' around. I'm off." Old man Roberts, who has a tobacco plantation near South Spectacle Lake, introduced the chewing habit among the cows. After he had cut his tobacco he turned his Jerseys into the field to see if they would eat the stalks. For years the farmers had been afraid to do it, but Roberts said he'd take the chance, as it was a shame to let such big green stalks go to waste. Roberts' cows ate all the stalks and mooed for

more. Their milk was not affected, either in color or taste. The good news spread, and now everybody's cows in the Housatonic Valley are chewing the real cud. The only thing is that when the cows chew too much they grow a little bit cross-eyed and their mouths hitch up at one side. This is supposed to be a nervous affection. They also have a strong breath, which is to be analyzed by a professor from Yale.—*(New York World, Nov. 12.)*

THE SCANDAL IN THE VERMONT CATTLE COMMISSION.—*Burlington, Vt., Nov. 1.*—The Chettenden County Grand Jury has returned indictments against Dr. F. A. Rich, of this city, and Victor I. Spear, of Randolph, former members of the State Cattle Commission. They are charged with willful neglect of duty, and it is specially stated that they sold tubercular cattle to the Consolidated Rendering Company. The cattle were sold, the Grand Jury finds, with the full knowledge of the commissioners that they were diseased and were to be used for food purposes. The Grand Jury also reported eight indictments containing eight hundred counts, four against the Consolidated Rendering Company and four against L. E. Brigham, manager of the Burlington Rendering Company. The indictments against both are identical and charge: first, the sale of diseased meat; second, the sale of a diseased cow; third, the possession of meat of a calf under four weeks of age, for the purpose of shipping it out of the state; four, the possession of the body of a calf, to be sold for food purposes. The Consolidated Rendering Company was found guilty of contempt and fined $3,000 by Judge Rowell. It failed to produce before the Grand Jury certain papers and memoranda called for. Counsel for the defendant said the papers had been destroyed prior to the investigation.

CROSS BREEDING BETWEEN THE GENUS OVIS AND THE GENUS SUS.—The following letter from Claudio Dunning, Hidalgo, Mexico, to the *Breeder's Gazette* of Oct. 23, explains itself: "Is it generally known that a ram can be crossed on a sow and not only produce pigs, but that the get will reproduce its kind? I have been handling stock all my life as a breeder, but never heard of such a thing until I came to this country, eleven years ago, and for a long time would not believe it and did not in fact until I personally saw it demonstrated. It is a common practice here among the poor people who want to improve their hogs. The cross is much larger than the common breed of hogs and large for any breed and they are slow to mature, not

being grown until they are two and a half years old. They grow very tall and their hair is very curly and fine, but otherwise they are just like the hog. The ram used is taken away from the rest of the sheep when it is small and not allowed to be with them again, but kept running with the hogs all the time."—[The editor of the *Gazette*, commenting upon the letter of its correspondent, says: "This seemingly unnatural cross has been made the subject of record in these columns. This cross-bred animal is called the cuino." The REVIEW would like to obtain the evidence of any veterinarian who has observed the fruition of the cross of these two genera.]

FREE WINTER COURSE IN DAIRY FARMING.—The Massachusetts Agricultural College offers without charge for tuition a general course of instruction in the management of a dairy farm and in dairy operations. This course begins January 2d and continues 10 weeks. It is open to all citizens of the United States above 16 years of age. Students taking this course enjoy the great advantage of a systematic though short course of training under recognized experts. The subjects taken up are soils, manures, fertilizers, and crops; the breeds and breeding of dairy stock; the feeding of dairy animals; stable construction and sanitation; prevention and treatment of the common diseases of stock; dairy products, their general characteristics and the laws of milk production; pasteurization; elementary botany and entomology, and general horticulture. Students receive careful training and extensive practice in the use of separators, making the Babcock test, and in butter making. All wideawake communities are demanding better dairy products. Students taking this course learn how to make the necessary improvements in methods of production. The demand for farm superintendents is great, but only up-to-date superintendents are wanted. Those taking this course are able to learn the latest methods. Dr. James B. Paige instructs in the common diseases of stock, and stable construction and sanitation. Any one desiring information concerning the course should address Prof. William P. Brooks, Amherst.

A WONDERFUL GRASS FOR BREEDERS.—Mr. B. Harrison, writing to the Brooklyn (N. Y.) *Eagle*, from Burringbar, Tweed River, N. S. W., Australia, under date of September 15, says: "All stock owners are aware of the great value of good fodder plants, and after many years' experience and observation of this marvellous grass, which appears to thrive well and yield abundantly in all soils and situations, I do not think I can make a

mistake in saying that to your graziers and dairy farmers it would prove one of the greatest boons with which they could possibly become acquainted. After about twelve years experience Paspalum Dilattum has become the favorite grass with the farmers on the north coast of New South Wales, Australia, and to the dairyman especially it has proved a veritable mine of wealth, and can be converted, if necessary, into hay, ensilage or chaff. It produces an immense amount of succulent herbage, which is eagerly relished by all stock, grows from five feet to ten feet high, bears a large quantity of seed, which can readily be disposed of at a good price and thrives well almost anywhere. No other grass can equal it for rapid growth, quantity and quality of herbage, and its adaptability to almost any soil or climate, and the person who introduces this grass into his district will prove a benefactor not only to the locality in which he resides, but the country generally. Any land on which paspalum is established is worth from $10 to $100 per acre. Once established, this grass remains permanent for all time, and saves the farmer from the great annual expense entailed in the purchase and cultivation of other grass seeds. It has been known to yield on cultivated ground, when four months old, 22 tons of green fodder, and several successive cuttings of over 13 tons each per acre within the year. On fairly rich soil where there is a good rainfall this grass should easily sustain one bullock, or ten sheep per acre, and from 50 to 100 pigs could be kept in good condition on a few acres with the addition of some skim milk or other feed. All persons who have used it for this purpose speak very highly of it."

MOLASSES FOR HORSES.—Scientific tests in substituting molasses for oats and other cereals in feeding horses have yielded surprising results. It is now definitely established that as a horse diet there is magic in molasses. With this syrup on his bill of fare the horse rapidly takes on solid weight, develops prodigiously in muscular energy, grows a glossy coat and enjoys uninterrupted health. For these animals, therefore, molasses is declared to be both a tonic and health food. In addition to the many desirable results, a molasses diet reduces the cost of horse maintenance twenty-five per cent. For scientific experimentation two abject and unthrifty animals were selected. One weighed nine hundred pounds and the other nine hundred and forty pounds. No preparation was made for the sudden change of diet, but in place of the usual allowance of hay and oats the horses were given three times a day one

quart of molasses diluted with three quarts of water mixed with five pounds of cut hay. A marvelous improvement in the animals resulted. In two weeks one gained forty pounds in weight and the other forty-five. In four weeks from the beginning of the molasses diet horse No. 1 gained ninety-five pounds and horse No. 2, one hundred and two pounds. Both of these horses were shedding their coats and after six weeks of molasses régime their new coats were glossy and luxuriant. Horse No. 1 at the end of that period weighed one thousand and seventy-five pounds and No. 2, one thousand and eighty-six pounds. All symptoms of decrepitude disappeared. At the termination of the six weeks experiment the animals could not be recognized as the forlorn creatures with which the tests had been begun. In place of those jaded specimens there were led forth from the stables two fine horses, the scientists describing them to be "full of play, life and energy." The animals were afterwards employed profitably for city work. These and such like tests are extending the use of molasses as a food for horses. Firms employing many horses in the hardest kind of contract and truck work are discovering that the animals will perform more service and remain in better condition on a diet of molasses than when fed the choicest and most liberal allowance of cereals. In the United States artillery corps there are enthusiastic champions of molasses as a horse diet, and horses in the armies of France, Germany and Austria are being fed on molasses with very satisfactory results. Quite recently tests have been conducted to determine what efficiency molasses might have in restoring invalid horses to health. A gelding greatly reduced as the result of a severe accident, and a lame and ailing truck horse were selected. At the beginning of the experiments the gelding weighed one thousand two hundred and fifty pounds and the truck horse one thousand one hundred and forty pounds. Fed on a diet chiefly consisting of molasses, the invalid horses improved with marked rapidity. In fifteen days the gelding weighed one thousand three hundred and twenty pounds, having gained seventy pounds. In that same period the sick truck horse gained sixty pounds. The total gain of the gelding in one month was two hundred pounds and of the truck horse one hundred and ten pounds. The conclusion that eminent specialists have arrived at is that good molasses is not only a fattening and energy-producing diet for horses, but that in many cases it will restore ailing animals to health.—*(American Cultivator).*

VETERINARY MEDICAL ASSOCIATION MEETINGS.

Secretaries are requested to see that their organizations are properly included in the following list.

Name of Organization.	Date of Next Meeting.	Place of Meeting	Name and Address Secretary.
American V. M. Ass'n.....	Sept. 10-13, '07.	Kan. City, Mo.	R. P. Lyman, Hartford, Ct.
Vet. Med. Ass'n of N. J.....	Jan. 10, 1907.	Jersey City.	W. H Lowe, Paterson.
Connecticut V. M. Ass'n.....	1st Tu. Feb., '07	Hartford.	B. K. Dow, Willimantic.
New York S. V. M. Soc'y....	Sept., 1907.	New York City	G. T. Stone, Binghamton.
Schuylkill Valley V. M. A. .	Dec. 19	Reading.	W. G. Huyett, Wernersville.
Passaic Co. V. M. Ass'n.....	Monthly.	Paterson, N. J.	H. K. Berry, Paterson, N. J.
Texas V. M. Ass'n.....	Call Exec. Com.	.....	E. L. Lewis, Waxahachie.
Massachusetts Vet. Ass'n.....	Monthly.	Boston.	F. J. Babbitt, Lynn, Mass.
Maine Vet. Med. Ass'n.....	.....	.....	R. E. Freeman, Dexter.
Central Canada V. Ass'n.....	.....	Ottawa.	A. E. James, Ottawa.
Michigan State V. M. Ass'n...	Feb., 1907.	Lansing.	Judson Black, Richmond.
Alumni Ass'n N. Y.-A. V. C..	April, 1907.	141 W. 54th St	W. C. Miller, N Y. City.
Illinois State V. M. Ass'n.....	Dec. 4-5, 1906.	Chicago.	F. H. Barr, Pana.
Wisconsin Soc. Vet. Grad.....	Call of Pres't.	Sheboygan.	S Beattie, Madison.
Illinois V. M. and Surg. A....	.....	Decatur.	C. M. Walton. Rantoul.
Vet. Ass'n of Manitoba.....	Not Stated.	Winnipeg.	F. Torrance, Winnipeg.
North Carolina V. M. Ass'n...	.....	.....	C. J. Fleming, Winston-Salem
Ontario Vet. Ass'n.....	.....	.....	C. H. Sweetapple, Toronto.
V. M. Ass'n New York Co....	Dec. 5, 1906.	141 W. 54th St	D. J. Mangan. N. Y. City.
Ohio State V. M. Ass'n.....	.....	Columbus.	W H. Gribble, Wash'n C. H.
Western Penn. V. M. Ass'n...	1st Wed. ea. mo	Pittsburgh.	F. Weitzell, Allegheny.
Missouri Vet. Med. Ass'n.....	.....	.....	F. F. Brown, Kansas City.
Genesee Valley V. M. Ass'n...	.....	Rochester.	J. H. Taylor, Henrietta, N. Y.
Iowa State V. M. Ass'n.....	.....	.....	H. C. Simpson, Denison, Ia.
Minnesota State V. M. Ass'n..	Jan. 9-10, '07.	St. Paul.	C. A. Mack, Stillwater.
Pennsylvania State V. M. A...	March 5-6, '07	Philadelphia.	C. J. Marshall, Philadelphia
Keystone V. M. Ass'n.....	Monthly.	Philadelphia.	A. W. Ormeston, 102 Herman St., Germantown, Pa.
Colorado State V. M. Ass'n...	1st Mon. in June	Denver.	M. J. Woodliffe, Denver.
Missouri Valley V. Ass'n	Feb. 18-19, '07.	Kan. City, Mo.	B. F. Kaupp, Kansas City.
Rhode Island V. M. Ass'n....	June and Dec.	Providence.	T. E. Robinson, Westerly, R. I
North Dakota V. M. Ass'n....	.....	.....	J A. Winsloe, Cooperstown.
California State V. M. Ass'n...	Mch. Je. Sep, Dc	San Francisco	C. H. Blemer, San Francisco.
Southern Auxiliary of California State V. M. Ass'n....	Jan. Apl. Jy, Oct.	Los Angeles.	J. A. Edmons, Los Angeles.
South Dakota V. M. A.....	.....	.....	E. L. Moore, Brookings.
Nebraska V. M. Ass'n.....	.....	.....	Hans Jenson, Weeping Water
Kansas State V. M. Ass'n....	Jan. 8-9, '07.	Topeka.	Hugh S. Maxwell, Salina.
Ass'n Médécale Veternaire Francaise "Laval,".....	1st & 3d Thur. of each month.	Lect. R'm Laval Un'y Mon.	J. P. A. Houde, Montreal.
Alumni Association A. V. Col..	April each yr.	New York.	F. R. Hanson, N. Y. City.
Province of Quebec V. M. A...	.....	Mon. & Que.	Gustave Boyer, Rigand, P. Q.
Kentucky V. M. Ass'n.....	.....	.....	D. A. Piatt, Lexington.
Washington State Col. V. M. A.	Monthly.	Pullman, Wa.	Wm. D. Mason, Pullman.
Indiana Veterinary Association.	Jan. 3. '07.	Indianapolis.	E. M. Bronson, Indianapolis.
Iowa-Nebraska V. M. Ass'n..	.....	.....	A. T. Peters, Lincoln, Neb.
Louisiana State V. M. Ass'n..	.....	.....	E. P. Flower, Baton Rouge.
Twin City V. M. Ass'n.....	.....	.....	S. H Ward, St. Paul, Minn.
Hamilton Co. (Ohio) V. A....	.....	Cincinnati.	Louis P. Cook, Cincinnati.
Mississippi State V. M. Ass'n..	.....	.....	J. C. Robert, Agricultural Col.
Georgia State V. M. A.....	Dec. 27, 1906.	Atlanta.	L C. Willoughby. Experiment
Soc. Vet. Alumni Univ. Penn..	June, 1907.	Philadelphia, Pa.	B. T. Woodward, B. A. I., Chicago.

PUBLISHERS' DEPARTMENT.

PARKE, DAVIS & Co. take pleasure in announcing through the AMERICAN VETERINARY REVIEW, that during the forthcoming International Live Stock Exposition, at Chicago, they will again be represented in the Record Building, also in the Exposition Building, just as last year. Visitors will be made welcome at both places. If you are one of the many who have visited Parke, Davis & Co.'s displays during the past seasons, come again; renew acquaintances and see the Exhibit this year. If you have missed these displays before, this year is a good time to get acquainted. You will find there products for the cure and prevention of animal diseases that every live, up-to-date stockman is thinking and talking about. This will include Blacklegoids, for the prevention of Blackleg in cattle; Anthraxoids, for protection against Anthrax; Kreso and Kreso Dip, everywhere recognized standards of disinfectants and dips; Formaldehyde (P., D. & Co.), for the prevention of smut on grain; Mallein, for testing horses for glanders; Antitetanic Serum; Influenza Antitoxin; Cultures of Nitrogen Gathering Bacteria; Rat Virus, a means of destroying rats and mice by inoculating them with a disease that destroys only rats and mice. No doubt you have often wanted information on these very subjects. This is an opportunity to get some facts and talk the matters over with people who are making a scientific specialty of these problems. Parke, Davis & Co. are known the world over for the production of the highest grade of medicinal products, both for human and veterinary use. In their home laboratories in Detroit they are constantly carrying on experimental work along chemical and biological lines, seeking to improve old remedies and to discover new ones.

The Parke, Davis & Co.'s representatives that you find at these displays will be men who are familiar with these investigations and who will take pleasure in discussing questions of this kind and supplying you with interesting reading matter on any or all of the above subjects.

Remember the places, Record Building at your left as you go in, and in the large Exposition Building. Cut this out and take it along as a reminder of one of the things you want to see at the International.

WE are advised by the Pasteur Vaccine Co., Ltd., who furnish the Veterinary Serums of the Institut Pasteur, Paris, France, that their Antistreptococcic Serum was used on the recent shipment of Arabian horses imported by Homer Davenport, for his farm located at Morris Plains, N. J. Although the animals were not accustomed to ocean air, yet they were shipped on the upper deck all the way from Alexandretta to New York, and by the use of Antistreptococcic Serum reached destination in the best of condition. This was an important test and demonstrates to all veterinarians and horse shippers the benefit to be obtained by the use of this valuable Serum in the prevention of shipping fever, acclimation fever and kindred diseases due to the streptococcic germ.

TWO ENTERPRISING HOUSES are represented on pages 19 and 20 (adv. dept.) viz.: Walter F. Sykes, who comes back to us with an improved preparation of "Tallianine," and "The Max Wocher and Son Co.," who have many innovations in the instrument line to present to the veterinary profession.